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Occupational Safety and Health
Record Keeping System

Hazardous Materials Control Module
Program Maintenance Manual

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16. Abstract (Limit: 200 words)

This manual describes the software used by the Hazardous Materials Control (HMC) module. An overview of the entire module is presented, followed by detailed descriptions of the routines that support each function in the module. The information contained in this document is intended to help computer support staff maintain the HMC module. This manual describes the type of options and the templates, files, subfiles, and routines it uses.

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PREFACE

Since August 1984, The MITRE Corporation has been supporting the Naval Sea Systems Command (NAVSEA) and the Naval Medical Command (NAVMEDCOM) in their joint efforts to enhance the Navy Occupational Health Information Management System (NOHIMS). NOHIMS, whose initial version was developed at the Naval Health Research Center (NHRC), is a composite of two subsystems: an industrial subsystem and a medical subsystem. The goal of the enhancement effort was to create a comprehensive occupational health and safety system for Navy industrial facilities by expanding upon the original NOHIMS functions and adding modules for hazard deficiency abatement, hazardous material control, injury claims and compensation, and safety and health training. To meet this goal, MITRE developed an enhanced industrial subsystem, referred to as the Occupational Safety and Health Record Keeping System (OSHRKS), using a prototyping approach and a public domain data base management software package, the Veterans Administration's (VA's) FileManager (FileMan).

OSHRKS consists of the following seven modules:

- Environmental Exposure
- Medical Exam Scheduling
- Hazardous Materials Control
- Hazard Deficiency Abatement
- Injury and Compensation Claims
- Safety and Health Training
- Administration

Each NAVSEA facility will use from four to seven of these modules depending on its information needs. The NAVMEDCOM sites require three of the industrial modules and the Administration module in addition to the medical subsystem.

Complete and accurate technical and non-technical documentation was required for each of these modules. This documentation was to describe clearly and accurately the capabilities of OSHRKS--an advanced, online, integrated system based on the use of a data base management system and a programmer tool kit--while also satisfying the Navy's documentation standards. Representatives from various groups within the Navy, working

with members of MITRE's technical staff, created a set of documentation guidelines for the OSHRKS modules. These guidelines specified the title of each document and its content and format.

The following three types of documents have been prepared for each of the first six modules listed above:

- Users' Manual - This manual describes, in non-technical terms, the module's major input and output processes. Examples of reports and displays produced by the module are included. This document is intended for use by the reader who is interested in understanding the module's capabilities.

- Operators' Guide - This guide explains how a user interacts with the module to enter or retrieve data. For each menu option in a module, an overview of the purpose of the option is presented, an example prompt sequence is displayed, and detailed explanations of the user's interactions to specific prompts are discussed. These documents are intended for use by those people who will be entering data into or retrieving data from the module.

- Program Maintenance Manual - This manual describes the software used by the module and is intended for use by the programmer who must maintain or enhance the module's software.

Three additional documents that provide documentation on the Administration module and on system-wide activity have also been prepared. The Primer describes, in general, how a user interacts with a FileMan-based system and enters and retrieves data from the Administration module. The System Manager's Guide provides instructions to the staff that must keep the system operational on a day-to-day basis. Largely, it serves as the Operators' Guide for the Administration module. System management functions needed to keep the other modules operational are also explained in this document. The System-Wide Program Maintenance Manual describes the software used in the Administration module and those software utilities that are used by all modules. This document is intended for use by the maintenance programmer.

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1.0 GENERAL

1.1 Purpose of the Program Maintenance Manual

This manual describes the software used by the Hazardous Materials Control (HMC) module of the Naval Sea Systems Command's (NAVSEA's) Occupational Safety and Health Record Keeping System (OSHRKS). An overview of the entire module is presented, followed by detailed descriptions of the routines that support each function in the module. The information in this document is intended to help computer support staff maintain the HMC module software. For a management-level view of the HMC module, the user is referred to the Hazardous Materials Control Module Users' Manual. A detailed discussion of how the user interacts with the module is found in the Hazardous Materials Control Module Operators' Guide.

1.2 References

The following references provide technical information about the HMC module:

- VA FileMan User's Manual, Version 17, Veterans Administration, March 1986
- VA FileMan Programmer's Manual, Version 17, Veterans Administration, March 1986
- OSHRKS System-Wide Program Maintenance Manual
- OSHRKS Primer
- The Hazardous Materials Control Module Users' Manual
- The Hazardous Materials Control Module Operators' Guide
- System Manager's Guide

The following publications provide background information on the HMC module:

- DoD Hazardous Materials Information System Procedures, DoD 6050.5M, July 1981
- Federal Supply Classification Part 1: Groups and Classes, SB 708-21, May 1982

- Navy Occupational Safety and Health (NAVOSH) Program Manual, OPNAV Instructions 5100.23B

- Material Management Application--Shelf Life/Hazardous Materials Analysis Package, August 1984

- Federal Standard--Material Safety Data Sheets, Preparation and Submission of (Proposed), Federal Standards 313B, April 14, 1983

- NAVSUP Instruction 5100.27: Navy Hazardous Material Control Program

- Philadelphia Naval Shipyard Instruction 4491.1--JML Preparation Guide, March 1985

- Consolidated Hazardous Item List (CHIL)--NAVSUP Publication 4500, July 1980

1.3 Terms and Abbreviations

The following terms and abbreviations are used in this manual:

- CAS (Chemical Abstract Service) Number: A unique identification number given to chemical substances by the Chemical Abstract Service.

- Code 106: The Occupational Safety and Health (OSH) Office at the shipyard.

- Document Number: The number used by the Supply department to identify their records uniquely in the Materials Management (MM) System.

- DR String: A literal containing the field numbers used in an edit sequence.

- FileMan: The data base management package written by the Veterans Administration to interact with the MUMPS (see below) programming language. This package, also called FileManager, is used in OSHRKS to handle data manipulation needs.

- FSC (Federal Supply Class): The first 4 digits of the 13-digit national stock number.

- FSCM (Federal Supply Code for Manufacturers): A 5-digit code used to identify manufacturers and distributors of hazardous materials.

- HMIS (Hazardous Materials Information System): A computer-based information system developed to accumulate, maintain, and disseminate (on magnetic tape and microfiche) important characteristics of hazardous materials which exist throughout the DoD.

- Kernel: A package of programming utilities written by the Veterans Administration for use with the MUMPS (see below) programming language. This package is used in OSHRKS for menu management, task management, security control, electronic mail, and related activities.

- LAYGO: Learn As You Go.

- LSN (Local Stock Number): A number assigned by a single facility to identify a hazardous material used in that facility.

- Material Name: The part number, trade name, or synonym commonly used to refer to a hazardous material.

- MM (Materials Management) System: A computerized system used by supply departments in all shipyards to track purchase and distribution of all materials used in various shops at Navy shipyards.

- MSDS (Material Safety Data Sheet): A summary of the information known about a hazardous substance; must be supplied by a vendor when a facility purchases such material.

- MUMPS (Massachusetts General Hospital Utility Multi-Programming System): A programming language used to develop OSHRKS.

- NFPA (National Fire Prevention Association) Code: A code assigned by the National Fire Prevention Association that reflects the health, fire, and reactivity hazards of a substance.

- NIIN (National Item Identification Number): The last 9 digits of the 13-digit national stock number.

- NIOSH (National Institute of Occupational Safety and Health) Number: A unique number assigned to materials by the National Institute of Occupational Safety and Health.

- NSN (National Stock Number): A 13-digit number used throughout the Navy to refer to any material purchased through the Federal Supply System.

- U.I.C. (Unit Identification Code): A unique number assigned to each Navy facility.

- Stressor: Any chemical substance, biological agent (bacteria, virus, fungus, etc.), or physical stress, noise, heat, cold, hypo-hyperbaric pressure, etc., which is:

  (1) Regulated by any NAVOSH standard or Federal law or rule due to a hazard to health.

  (2) Listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemicals.

- VA: Veterans Administration.

- VDT: Video Display Terminal.

- Vendor: The manufacturer or distributor of material purchased for use in a Navy facility.

- Work Control Document: A document used in shipyards that describes how to perform a job that involves hazardous materials.

- WDS (Worker Data Sheet): A summary of health and safety information on hazardous materials that is intended for use by the worker.

1.4 Programming Language(s) and Conventions

The HMC module software is written in the Massachusetts General Hospital Utility Multi-Programming System (MUMPS) programming language. MUMPS is a standard language (X11.1-1984) approved by the American National Standards Institute (ANSI), though non-standard dialects exist. Non-standard language features have been avoided as much as possible so that OSHRKS can run in any standard MUMPS environment.

Certain features of OSHRKS, such as error trapping, require the use of implementation-specific language features. When necessary, these features are implemented via M/VX, the InterSystems Corporation's MUMPS language product for the VAX computer. For each option in this manual using non-standard features, an explicit discussion of the feature is provided.

The OSHRKS software is based on the use of two MUMPS-based software packages: the VA FileMan data base management system and the VA Kernel system management packages. Knowledge of FileMan is essential to the maintenance programmer. Extensive use is made of FileMan input templates, sort templates, and print templates. Many OSHRKS options use direct calls to FileMan utility routines, e.g., DIC, DIP, DIQ, DIE, DIWF, within the MUMPS code to perform such activities as lookup, print, inquiry, input,

and form letter print, respectively. Additionally, through the use of templates and data dictionaries, certain security features of FileMan are activated in the OSHRKS. Furthermore, ad hoc query in OSHRKS is done through the use of the FileMan Search (Option 3) and Print (Option 2) options. Also, the FileMan data dictionary* is used to define all of the files in this module. The reader must have carefully reviewed the FileMan User's Manual and the FileMan Programmer's Manual, published by the Veterans Administration (VA), before using this manual or some of the terminology, specific to FileMan, used in this manual will be unclear.

The Kernel package is used in OSHRKS to provide security (user and device levels), menu management, and task management. Where custom MUMPS code has been used, the Kernel sets FileMan variables and invokes a FileMan routine to perform the appropriate function. For a complete technical view of OSHRKS, this manual must be used in conjunction with the documentation provided by the VA on the FileMan and Kernel packages (see Section 1.2).

1.5 Organization of the Manual

Section 2.0 provides a non-technical overview of the module and an overview of the module's files. Section 3.0 presents the module's menus; for each menu option, the number of the section where the option is discussed is shown. Sections 4.0 through 7.0 describe the software used by the various menu options. Each section covers the options that perform related functions. Section 8.0 describes a utility routine that is used module wide.

Each option's description in Sections 4.0 through 7.0 contains the following subsections:

- Purpose - Describes in non-technical terms the function(s) which the option performs.
- Overview - Describes the type of option and the templates, files, subfiles, and routines it uses. If the option is a routine option, i.e., it invokes the use of custom MUMPS code, the flow among routines and each routine's major function(s) are described.
- Globals Referenced - Lists by name and file number each file and subfile read or updated, the global referenced, and the module that has ownership of the global.

*If the maintenance programmer using this manual needs to review a file's data dictionary entries, he or she should use the FileMan List File Attributes option to generate the most current file data dictionary.

- Variables - Lists each variable name with a definition of its use.

- Remarks - Describes any special processing, special coding conventions, algorithms, interface consequences, triggers, computed fields, and input syntax checks that are specific to the option. If a module-specific utility routine or software feature is involved, the reader is referred to the appropriate section of the manual.

1.6 Routine Structure Diagram Conventions

Most of the options in the HMC module are routine options, meaning that the Kernel invokes a custom-coded set of routines to perform the function(s) embodied in the routine. For each of these options, a routine structure diagram is included to describe the set of routines that are used. Each routine in the structure diagram is shown as a rectangle. The structure diagram indicates the control flow within the routine by both the positioning of the rectangles and the orientation of the connecting lines. When two rectangles are connected by vertical lines without arrows, the upper program is "calling" the lower program through the use of the MUMPS "DO" command. The "called" routine returns control back to the "calling" program when the "called" routine completes its work. When two rectangles are connected by a line with arrows, this means that one routine is passing control to the other by means of a MUMPS "GO TO" command; usually these routines appear horizontally in the diagram. The direction of the arrow indicates the direction in which control is transferred. When a module-wide utility routine is invoked as part of an option, the routine is marked with a single asterisk (*) on the routine structure diagram. The reader must refer to a later section of this manual for a complete description of the utility routine (and its internal flow). When a system-wide utility routine is used, e.g., T2GED (the standard input driver program that performs completeness and consistency checking), the routine structure diagram shows this routine with a double asterisk ("**"). The reader must refer to the OSHRKS System-Wide Program Maintenance Manual for more detailed discussion of this routine and its internal flow.

2.0 MODULE DESIGN OVERVIEW

2.1 Module Design Summary

The Occupational Safety and Health (OSH) office can use the HMC module to inform workers of health and safety hazards in the workplace and to track the movement of hazardous materials throughout the facility. As seen in Figure 2-1, the module performs these functions by maintaining health and safety data on hazardous materials used in the facility, by keeping information about where those materials are located, and by tracking who requests information about any hazardous material.

Health and safety information on hazardous materials comes from several sources. The first source is the Hazardous Materials Information System (HMIS). Every three months, each Navy facility receives six HMIS tapes that contain detailed information on all hazardous materials used by the Defense Department. Three of the tapes are designated as "safety" tapes and two are designated as "transportation" tapes. The sixth tape contains reference information that is not used by OSHRKS. The OSH office specifies which records should be selected from the HMIS tapes, and the information from those records is stored in OSHRKS files.

The second source of health and safety information is the vendors of hazardous materials who submit Material Safety Data Sheets (MSDS's). The data on each MSDS is manually keyed into the system and saved separately from Hazardous Materials Information System (HMIS) information. In general, the data from the MSDS is more current than the data on the HMIS tapes. However, both the HMIS records and the MSDS's contain the same type of data.

Each OSH office may add work control document references and special health-related information (e.g., toxicity, carcinogenicity, early signs of exposure) to the HMIS and MSDS entries in OSHRKS. They may also annotate each record with comments that clarify the information in various fields in the entry.

Information regarding the location of hazardous materials in the facility comes from the Materials Management (MM) system. A magnetic tape is created by the MM system (usually daily) that contains information on all hazardous material issued by the Supply Department since the last tape was made. Each record on the MM tape represents an issue transaction, and these records are all loaded into the OSHRKS system. From these records, the user can determine which shop requested the material and to which building and shop the material was issued.

The last source of information on materials' locations are the people who request data sheets from the OSH office. A record is kept of these requests to determine where hazardous materials are likely to be used.

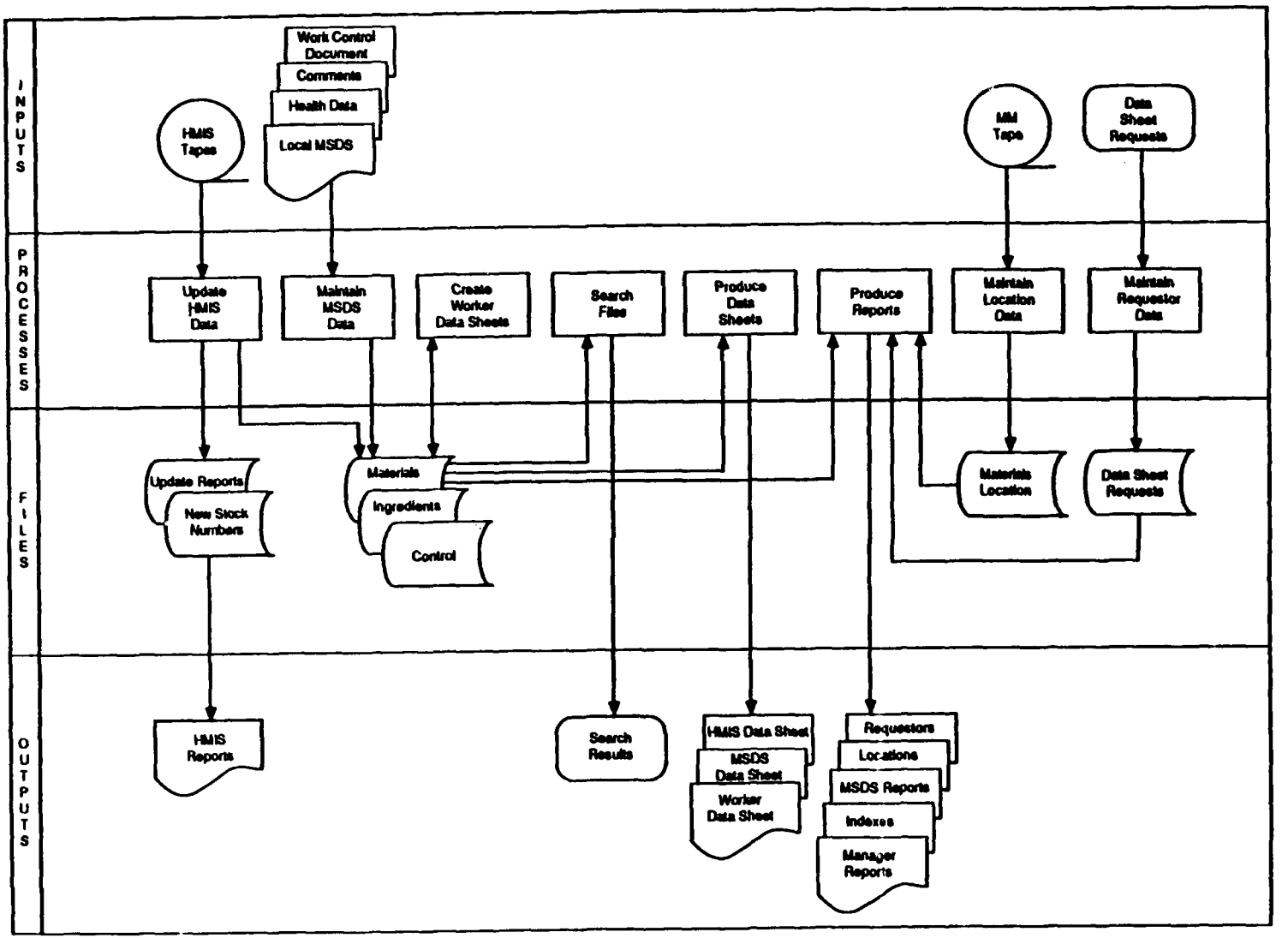

FIGURE 2-1
HAZARDOUS MATERIALS CONTROL MODULE OVERVIEW

The primary outputs of the HMC module consist of data sheets that describe the health and safety hazards of specific materials and screen displays of the same information. Worker data sheets (WDS) are created by copying an existing HMIS or MSDS entry to a WDS entry and then editing the WDS. The module also produces a variety of reports that describe the materials contained in OSHRKS.

2.2 File Overview

There are nine files created and updated in the HMC module. These files are listed in Table 2-1 along with their FileMan file numbers, their global references (the MUMPS name for the global followed by an open parenthesis), and an indication of which module controls the updating of the file's contents. One of the HMC files, the Materials file, is also referenced by the Environmental Exposure module. Table 2-1 also lists three files not belonging to the HMC module that are referenced by the routines in this module.

The relationships between the major HMC files are illustrated in Figure 2-2. In this figure, the solid arrows represent FileMan pointers (i.e., fields containing the internal entry number of the .01 field* in another file). The dotted arrows represent a field that contains the actual value of the .01 field in another file. The Material Location file has no connection with any other file in the HMC module.

The Materials file and Ingredients file are the primary repository of health and safety information on hazardous materials for the HMC module.

The Materials file has three basic types of entries:

- HMIS entries
- MSDS entries
- WDS entries

The identification (ID) field for an HMIS entry is a 13-digit national stock number. There may be many HMIS entries with the same stock number. Therefore, two additional fields are required to identify an HMIS entry uniquely. The first is the Federal Supply Code for Manufacturers (FSCM), a 5-digit code that identifies the vendor supplying the material. The second is the part number indicator, a one-character code that signifies whether the material is the first, second, third, etc., formulation of the

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*See FileMan documentation referenced in Section 1.2.

TABLE 2-1
FILES AND GLOBALS USED BY
HAZARDOUS MATERIALS CONTROL MODULE

FILE NAME	FILE NUMBER	GLOBAL REFERENCE	MODULE
Materials	1080	↑HMAT(0,	HMC
Ingredients	1077	↑HMC(1077,	HMC
Material Location	1078	↑HMC(1078,	HMC
Data Sheet Requests	1075	↑HMC(1075,	HMC
Haz Mat Control	1079	↑HMC(1079,	HMC
Ingredient Exception Report	1076	↑HMC(1076,	HMC
New Stock Numbers	1081	↑HMC(1081,	HMC
HMIS Errors	1089	↑HMC(1089,	HMC
HMIS Update	1098	↑HMC(1098,	HMC
Agency Unit	1074	↑AGENCY(0,	ADMIN
Stressor	1083	↑STRESS(0,	ADMIN
Product	1142	↑FMAT(	EE

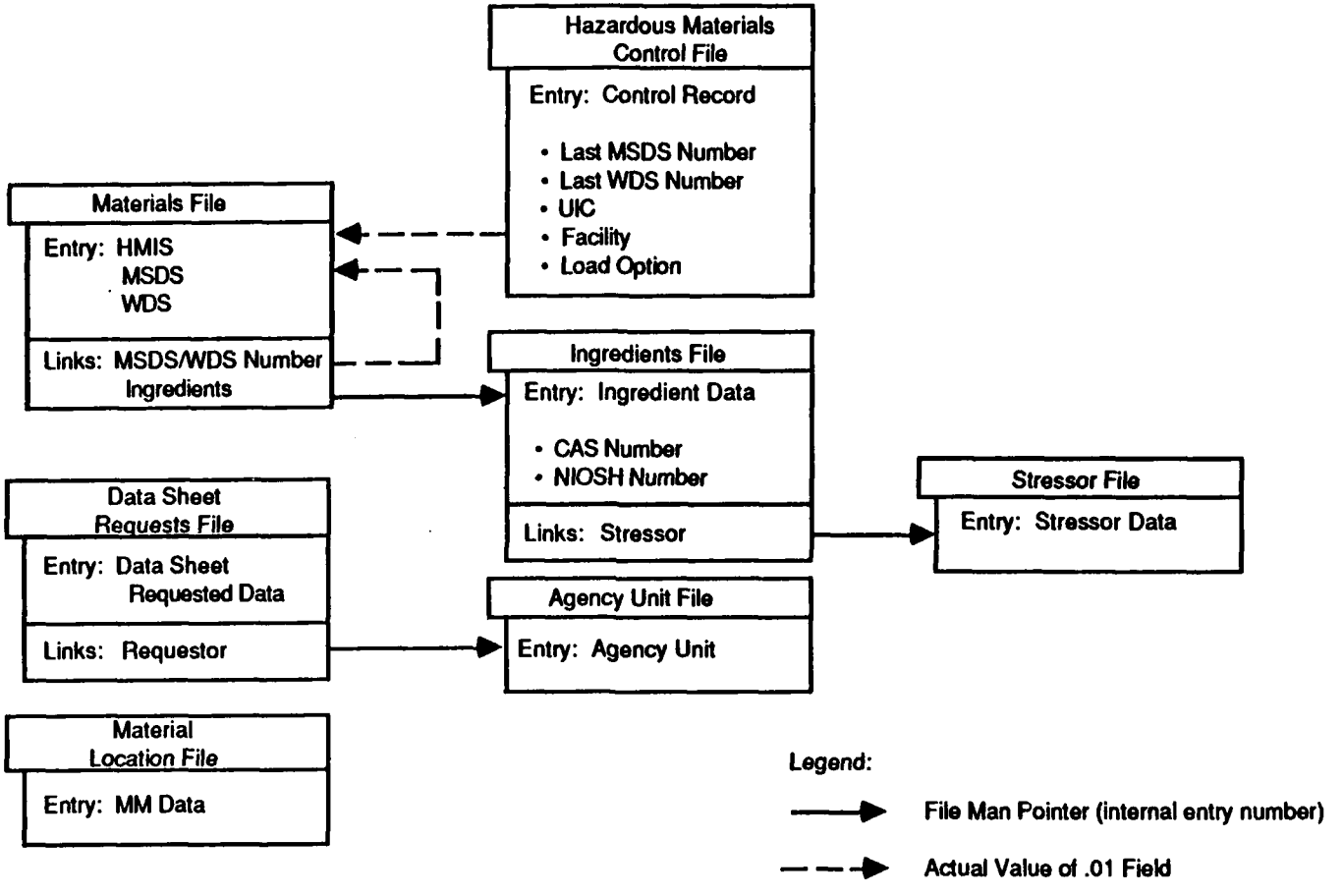

FIGURE 2-2
HAZARDOUS MATERIALS CONTROL MODULE
FILE RELATIONSHIPS

material. The part number indicator should not be confused with the part number, the latter being a reference number attached by a vendor to a material. Together the stock number, FSCM, and part number indicator uniquely identify an HMIS entry.

The second type of Materials file entry is the local MSDS entry that is entered into the system manually from MSDS's received from vendors. The ID field in this type of entry is a locally-generated sequential number that uniquely identifies an MSDS. The first two characters in this number are "M/" and the next five digits are the facility's U.I.C. The remainder of the ID is the sequential number assigned by each facility.

The third type of entry in the Materials file is the WDS. The ID field for a WDS is similar to that for an MSDS. It begins with the characters "W/" followed by the U.I.C. of the facility and a locally assigned sequential number. The entry itself is created by copying an HMIS entry or local MSDS entry and editing the data contained therein.

Each Materials file entry may have multiple ingredients. These ingredients are actually stored in the Ingredients file along with their CAS and NIOSH numbers. The Ingredients file is linked to the Stressor file for those ingredients whose name matches a stressor.

The Materials file has an agency screen that controls the agency U.I.C. number assigned to a worker data sheet. Users may only create worker data sheets with a U.I.C. for which they are authorized.

The Material Location file contains the information that was obtained from the MM system tapes. The ID field is the document number, a unique sequence of characters that is meaningful to the Supply Department that runs the MM system. For OSHRKS users, it is enough to know that the number can be used to retrieve individual entries in the Material Location file. Each entry in this file represents one transaction in which some hazardous material was issued to a specific shop. There is no physical link between the materials in this file and those in the Materials file.

The Data Sheet Requests file contains an entry for each request that is made to the OSH office for a data sheet. The ID field in this file is the requestor's name. Each entry contains the name of the material requested and the date and time of the request.

The Ingredient Exception Report file, HMIS Update file, and the HMIS Errors file are report files that contain data generated during an HMIS update. Information in these files is used to produce reports that document the status of an HMIS update.

The New Stock Numbers file is a temporary file that is created during an HMIS update. Each entry in this file contains the three fields that uniquely identify an HMIS record (the stock number, the FSCM, and the part number indicator). The entries in this file determine which records on the HMIS tapes will be selected for inclusion in the OSHRKS data base.

There is one reference file in this module, the Hazardous Materials Control file. Only one entry exists in this file and it contains the facility's U.I.C., the name of the facility, the last number assigned to a local MSDS, the last number assigned to a worker data sheet, and a code that indicates whether the shipyard may load HMIS records by stock number only.

2.3 Naming Conventions

Most global names in this module begin with the letters "HMC"; the Materials global is named HMAT. All variables used in this module also begin with the letter "H". All options names begin with the letters "T2H".

The routines in the HMC module are grouped into seven categories for naming purposes. These categories are the following:

- Loading data tapes (T2HH*, T2HL*, T2HMM)
- Entering and editing data (T2HE*)
- Deleting records (T2HDL*, T2HPG)
- Printing reports and data sheets (T2HR*)
- Searching the data base (T2HS*)
- Displaying key fields (T2HD*)
- Initializing the module (T2HE9)

The first few letters of the routine names in each category are shown in parentheses. The asterisk means that any combination of letters may follow the first few letters.

3.0 MODULE OPTIONS

The Hazardous Materials Control module options are related to three processes:

- Hazardous Materials Information Process - The options in this process are used to manage the safety and health information needed by employees for their work. The process contains options used to enter and edit HMIS entries, MSDS entries, and worker data sheet entries as well as options to produce management reports and summary worker data sheets.

- Material Location Information Process - The options in this process deal with loading and using data generated by the MM system.

- Data Sheets Requested Information Process - The options in this process deal with the handling of data sheet requests.

These three processes correspond to the processes described in the Hazardous Materials Control Module Users' Guide.

Table 3-1 shows the structure of the module's menus and options. The section number in this document in which each option is discussed is shown in parenthesis after the option name.

The flexibility of the Kernel's menu system will allow the menu structures to change frequently or be set individually as local sites become familiar with the system's capabilities. Because of this flexibility, the options are going to be presented in terms of the processes that have been discussed rather than the menu structure.

Appendix A lists the options in alphabetical order and identifies the FileMan option name associated with each option. Appendix B cross references the print templates with the options that use them. Appendix C cross references routine entry points with the options and routines that call them. There are no sort templates in the HMC module.

TABLE 3-1
HAZARDOUS MATERIALS CONTROL MENUS

1. Enter/Edit Hazard Data

    1 WDS Enter/Edit (4.3)
    2 MSDS Enter/Edit (4.2)
    3 Extra Fields Enter/Edit (4.4)
    4 Local Comments Enter/Edit (4.4)
    5 Work Control Document Enter/Edit (4.4)

2. Search for Material

    1 Worker Data Sheet Search (4.9)
    2 Material Name Search (4.9)
    3 Ingredient Search (4.9)
    4 Chemical Name Search (4.9)
    5 Vendor Search (4.9)
    6 Stock Number Search (4.9)
    7 CAS/NIOSH Number Search (4.9)
    8 MSDS Number Search (4.9)
    9 Specification Search (4.9)
   10 NIIN Search (4.9)
   11 Work Control Document Search (4.9)
   12 Contract No. Search (5.3)
   13 Shop Issued To Search (5.3)
   14 Building Issued to Search (5.3)
   15 Description (Name) Search (5.3)
   16 Stock Number Search (Location File) (5.3)

3. Data Sheet Print

    1 Worker Data Sheet Print (4.10)
    2 MSDS Print (4.10)

4. Indexes of Materials Records

    1 Vendor Index (4.11)
    2 Trade Name Index (4.11)
    3 MSDS Date Index (4.11)
    4 WDS Index (4.11)

TABLE 3-1
HAZARDOUS MATERIALS CONTROL MENUS
(CONTINUED)

5. MSDS Reports

   1 MSDS Number Report (4.12)
   2 Stock Number Report (4.12)
   3 Entry Date Report (4.12)
   4 Specification Report (4.12)
   5 Health Code Report (4.12)
   6 Fire Code Report (4.12)
   7 Reactivity Code Report (4.12)
   8 Specific NFPA Code Report (4.12)
   9 Form of Material Report (4.12)
  10 Ingredients Report (4.12)
  11 Work Control Document Report (4.12)
  12 CAS/NIOSH Number Report (4.12)

6. Location Reports

   1 Requesting Shop Location Report (5.5)
   2 Building Issued To Location Report (5.5)
   3 Contract Number Location Report (5.5)
   4 Date of Issue Location Report (5.5)
   5 Shop Issued To Location Report (5.5)
   6 Description (Name) Location Report (5.5)
   7 Usage Summary Location Report (5.5)

7. Request For Data Sheet (6.2)

8. Set Up New HMIS Record (4.5)

9. HMIS Tape Load (4.6)

10. MM Tape Load (5.2)

11. Manager Options

   1 Delete Materials Record (4.7)
   2 Purge Material Location File (5.4)
   3 Data Sheets Requested (6.2)

TABLE 3-1
HAZARDOUS MATERIALS CONTROL MENUS
(CONCLUDED)

11. Manager Options (Concluded)

    4 Update of HMIS Records (4.13)
    5 Errors in Loading HMIS (4.13)
    6 No Matching HMIS Records (4.13)
    7 Ingredients Not in Stressor File (4.13)
    8 WDS Approval (4.8)
    9 Enter U.I.C./Facility Code (7.0)

12. List Source of Worker Data Sheets (4.14)

4.0 HAZARDOUS MATERIALS INFORMATION PROCESS

4.1 Introduction

The input and output options described in this section are used to manage the health and safety data needed by employees for their work. This data is stored in the Materials file in the form of three different entries--HMIS entries, MSDS entries, and WDS entries. This section discusses how these three types of entries are entered and edited. It also describes how to produce management reports and data sheets summarizing the information in the Materials file.

The MSDS entries and WDS entries are identified in the Materials file by a unique locally generated number. An MSDS number has the format "M/99999-999" where the 5-digit number before the hyphen is the facility's U.I.C., and the number following the hyphen is a locally generated sequence number. All MSDS numbers start with the characters "M/". WDS entries are identified by a similar number as MSDS entries except that the WDS entries start with the characters "W/". Thus the format for a WDS number is "W/99999-999". The HMIS entries are all identified by a 13-digit stock number.

MSDS's are added to the Materials file using the MSDS Enter/Edit option. The data is keyed in manually from an MSDS. WDSs are created by copying an existing MSDS or HMIS entry to a WDS entry and then editing the data. This process is controlled by the WDS Enter/Edit option. HMIS entries are loaded from tape using two options--Set Up New HMIS Record option and HMIS Tape Load option.

All three types of Materials file entries may have additional data added to them through the following options: (1) Extra Fields Enter/Edit, (2) Local Comments Enter/Edit, and (3) Work Control Document Enter/Edit. Any of the three types of entries may be deleted with the Delete Materials Record option.

There are four report options that produce status reports describing the results of an HMIS load. These report options are: (1) Update of HMIS Records, (2) Errors in Loading HMIS, (3) No Matching HMIS Records, and (4) Ingredients Not In Stressor File.

Outputs from the Materials file can be obtained using the eleven search options, four index options, twelve MSDS report options, and two data sheet print options appearing in Table 3-1.

In addition to the Materials file, there is an Ingredients file that is used to store ingredient names and CAS and NIOSH numbers for each

ingredient. This file contains a pointer to the Stressor file for ingredients that have the same name as a stressor. The Haz Mat Control file stores the facility's name, U.I.C., last MSDS and WDS numbers used, and a code that permits the loading of HMIS records by stock number only.

The HMC module uses flags to control data loading and output. Table 4-1 contains the names of these flags and the templates and routines that control these flags. The use of these flags is explained in the "Remarks" section of the routines that use them.

TABLES 4-1
FLAGS IN MATERIALS FILE SET BY ROUTINES AND TEMPLATES

FILEMAN FIELD NO.	FIELD NAME	ROUTINE	INPUT TEMPLATE
3.5	Safety Flag*	---	RESET HMIS HMIS ENTRY HMIS SAFETY TAPE
3.6	Transportation Flag*	---	RESET HMIS HMIS ENTRY TRANSPORTATION
4	Print Flag*	T2HLS T2HLS1 T2HC	HMIS ENTRY HMIS SAFETY TAPE MSDSO
5	HMIS Data Flag*	T2HLS T2HLS1	HMIS ENTRY HMIS SAFETY TAPE MSDSO
11	WDS Flag*	T2HE6	---

*These flags are set by either the listed routines or the templates; the routines listed use "DR" strings to set the flags; the templates set the flags using MUMPS code within each template. The templates are located in routines not given in this table.

4.2 MSDS Enter/Edit

4.2.1 Purpose

The routines shown in Figure 4-1 allow the user to create records in the Materials file that contain local MSDS information (records that start with "M/").

4.2.2 Overview

T2HE1 is an input routine. It is used to enter new MSDS's and edit old ones. If the entry being edited is a new one, flags listed in Table 4-1 are set in the template MSDS0. The user next responds to a series of prompts from the template MSDS1. If the user exits this template with an "↑" and the entry is a new one, the entry is deleted because some of the required fields may not have been completed.

Next the ingredients are entered. The limits (TLV, PEL, Other) are entered into the Materials file while the CAS and NIOSH numbers are entered into the Ingredients file. The CAS and NIOSH numbers are then stuffed* into the Materials file. Routine T2HE1S is called to look up the ingredient in the Stressor file and set the stressor pointer field. If the ingredient is not found in the Stressor file, a line is written on the exception report. (Many ingredients are not stressors, but the user needs to know which these are.)

The rest of the standard MSDS fields are then entered using template MSDS2 and the extra fields are added using template MSDS3.

If the user deletes an ingredient, the routine T2HDL1 is called. This routine looks through the list of material pointers in the Ingredients file and Product file. When it finds the pointer to the material containing the deleted ingredient, the routine deletes that pointer.

---

*See FileMan references in Section 1.2.

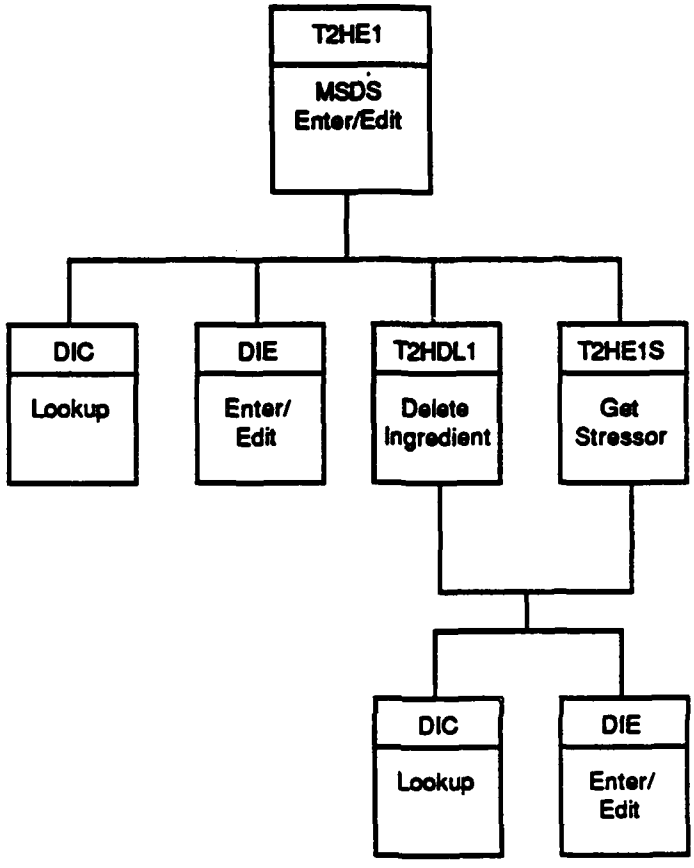

FIGURE 4-1
MSDS ENTER/EDIT

4.2.3 Globals Referenced

The following globals are read and/or updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Haz Mat Control	---	1079	↑HMC(1079,	HMC	Update
Materials	---	1080	↑HMAT(0,	HMC	Update
Ingredients	---	1077	↑HMC(1077,	HMC	Update
Ingredient Exception Report	---	1076	↑HMC(1076,	HMC	Update
Stressor	---	1083	↑STRESS(0,	ADMIN	Read
Product	---	1142	↑EMAT(	EE	Update

4.2.4 Variables

The following variables are used:

- HA: MSDS number
- HAR: Array containing the entry number of the ingredient to be deleted
- HCAS: CAS number of ingredient
- HCOD: Part number indicator
- HDA: Entry number of ingredient in Ingredients subfield in Materials file
- HEN: Entry number of MSDS in Materials file
- HFSCM: Federal supply code for the manufacturer
- HIN: Ingredient entry number in Ingredients file
- HING: Ingredient name
- HLAST: Last MSDS number added to Materials file
- HMFR: Manufacturer's name
- HMN: Full MSDS number
- HNAM: Trade name of material being edited

- HNEW: Flag to designate newly created record
- HNIOSH: NIOSH number of ingredient
- HNUM: Number of entries in HAR
- HY: Entry number of MSDS in Materials file
- HYO: Full MSDS number

4.3 WDS Enter/Edit

4.3.1 Purpose

The routines shown in Figure 4-2 allow the user to create a worker data sheet from an MSDS or an HMIS entry and then edit the WDS.

4.3.2 Overview

T2HE6 is the mainline routine. It is essentially the same as T2HE1 (MSDS Enter/Edit) except for the command lines which create the WDS. The user is asked for the source MSDS. If the source HMIS or MSDS record exists in the file, a WDS record is created by the routine T2HC. The number field and source record field are stuffed and the approval code and the WDS Flag are set.

T2HC copies a source entry to a new entry, thereby creating a WDS entry. All fields except the ingredients-related fields are copied in their entirety. Only the ingredient entry number is copied from the ingredients field, not the limits or CAS and NIOSH numbers. If the source entry is an HMIS entry, the stock number from its .01 field is put in the local stock number field so the WDS number can go in the .01 field. Since T2HC does not use DIC or DIE to set up the WDS entry, none of the FileMan indexes are created. Therefore, the indexes must be set by routine DIK.

After the WDS entry is created, the user may edit the WDS. Three templates are used in T2HE6 to control editing--WDS1, WDS2, and WDS3.

When the ingredients are entered, routine T2HE1S is called to look up the ingredient in the Stressor file and set the stressor pointer field. If the ingredient is not found in the Stressor file, a line is written in the exception report. (Many ingredients are not stressors, but the user needs to know which these are.)

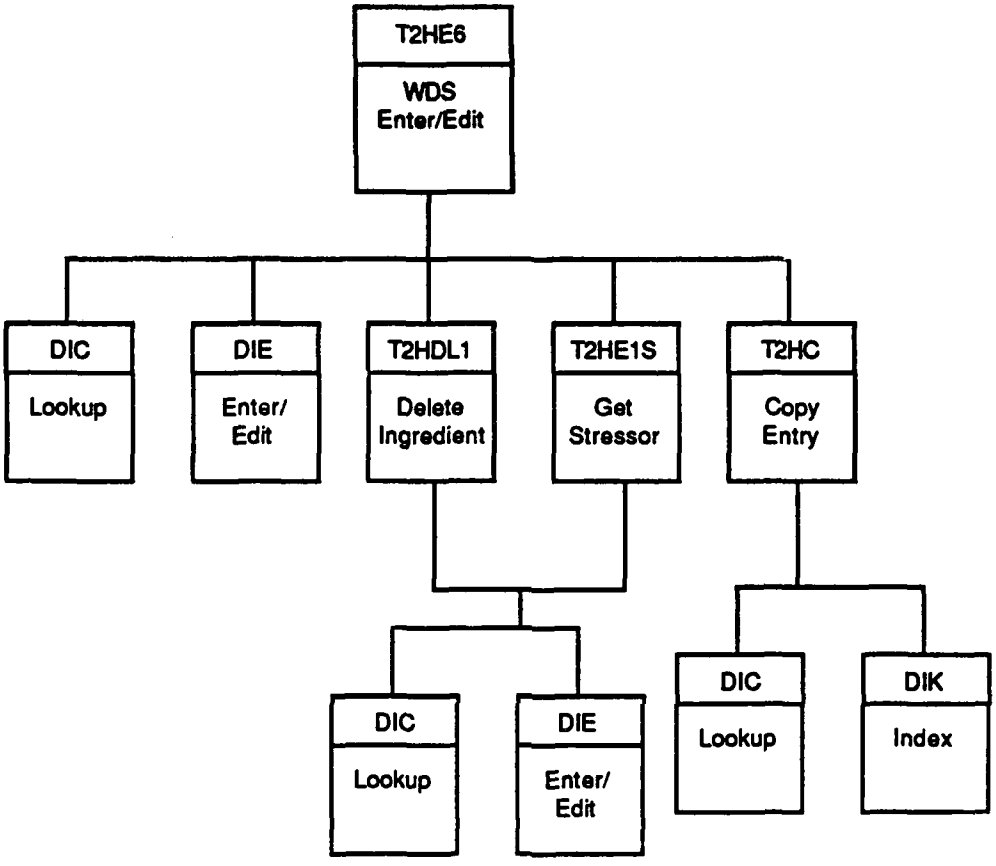

FIGURE 4-2
WDS ENTER/EDIT

If the user deletes an ingredient, the routine T2HDL1 is called. This routine looks through the list of material pointers in the Ingredients file and Product file. When it finds the pointer to the material containing the deleted ingredient, the routine deletes that pointer.

4.3.3 Globals Referenced

The following globals are read and/or updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Haz Mat Control	---	1079	↑HMC(1079,	HMC	Update
Materials	---	1080	↑HMAT(0,	HMC	Update
Ingredients	---	1077	↑HMC(1077,	HMC	Update
Ingredient Exception Report	---	1076	↑HMC(1076,	HMC	Update
Stressor	---	1083	↑STRESS(0,	ADMIN	Read
Product	---	1142	↑EMAT(	EE	Update

4.3.4 Variables

The following variables are used:

- HA: MSDS number
- HAG: Entry number in Agency file
- HAR: Array containing the entry number of the ingredient to be deleted
- HAX: Sequence of letters and numbers preceding the hyphen in the WDS number (i.e., W/99999 - where 99999 is the U.I.C.)
- HCAS: CAS number of ingredient
- HCOD: Part number indicator
- HDA: Entry number of ingredient in Ingredients subfield in Materials file
- HDB: Entry number of WDS record
- HDIE: Holding field for original DIE in T2HC
- HEN: Entry number of MSDS in Materials file

- HFSCM: Federal supply code for the manufacturer
- HIN: Ingredient entry number in Ingredient file
- HING: Ingredient name
- HMFR: Manufacturer's name
- HMN: Full MSDS number (same as HYO)
- HNAM: Trade name of material being edited
- HNEW: Flag to designate newly created record
- HNIOSH: NIOSH number of ingredient
- HNUM: Number of entries in HAR
- HSRC: MSDS number or stock number of source record
- HUIC: U.I.C. for agency
- HWDS: Last WDS number added for specific agency
- HY: Entry number of MSDS in Materials file
- HYO: Full MSDS number
- HYY: Entry number of WDS in Materials file

4.3.5 Remarks

When this option is used to create a WDS record, the WDS Flag is set to "X", indicating that this WDS record should be printed by the WDS Index Print routine (T2HR30). Also, the approval code is set to "Unapproved". In addition, the Print Flag is left blank so that this entry will not show up in MSDS reports and indexes.

4.4 Extra Fields, Local Comments, and Work Control Document References Enter/Edit

4.4.1 Purpose

These routines edit existing local MSDS's, HMIS entries and WDS's with local comments, extra data specified by the Navy Environmental Health Center (NEHC), and references to work control documents.

4.4.2 Overview

There are three routines that perform these options. T2HE2 is an input routine used to enter the extra MSDS-related data specified by NEHC. It calls DIE and uses the template NEHC ENTRY to control input.

T2HE3 is an input routine used to enter local comments. It also calls DIE and uses the template COMMENTS ENTRY to control input.

The last option, entry of work control document references, is controlled by T2HE4. This routine calls DIE and uses the template PI ENTRY.

4.4.3 Globals Referenced

The following global is read and updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Update

4.4.4 Variables

No special variables are used in these routines.

4.5 Set Up New HMIS Record

4.5.1 Purpose

This option identifies the HMIS records that should be selected from the HMIS tapes for loading into OSHRKS. It is used only if a partial load is planned, i.e., some, but not all, HMIS records are to be loaded. (This corresponds to the load options of "Add" and "Update".) If the entire HMIS tape is going to be loaded (load option is "Load"), the Load HMIS Tape option (see Section 4.6) is used instead.

4.5.2 Overview

The only routine in this option is T2HH. It allows the user to enter the three fields that identify an HMIS record--stock number, federal supply code for manufacturers (FSCM), and part number indicator. If the system manager has initialized the system with the "stock number only" option, the user is only required to enter a stock number. All HMIS records with that stock number will then be loaded when the Load Tapes option is performed. If the user does not have the "stock number only" option, he/she must enter all three identifying fields. If there is a local MSDS associated with the HMIS record, the MSDS number is entered and stuffed into the appropriate field.

4.5.3 Globals Referenced

The following globals are read and/or updated in this option:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Update
Haz Mat Control	---	1079	↑HMC(1079,	HMC	Read

4.5.4 Variables

The following variables are used in this option:

- HA: Stock number; also MSDS number
- HB: WDS number
- HDA: Entry number in Materials file

4.5.5 Remarks

The Safety and Transportation Flags are set to "A" for "absent" in this option.

4.6 Load HMIS Tape

4.6.1 Purpose

This option selects records from the HMIS tapes and loads them into the Materials file.

4.6.2 Overview

There are two sets of routines in this option--those routines that load safety tapes and those routines that load transportation tapes. The driver routine for both sets of routines is T2HHL. This routine displays a menu and the user selects from among the "Update", "Add", or "Load" options. The user also specifies whether he/she is loading safety tapes or transportation tapes. The following sections describe the routines for loading these two types of tapes.

4.6.2.1 Load Safety Tapes. Figure 4-3 is the structure diagram for the routines used in loading the HMIS safety tapes. T2HL1 creates the New Stock Numbers file, containing the keys for each new safety record to be loaded from the HMIS tapes. It reads the entries keyed into the Materials file using the Set Up New HMIS Record option (see Section 4.5) to

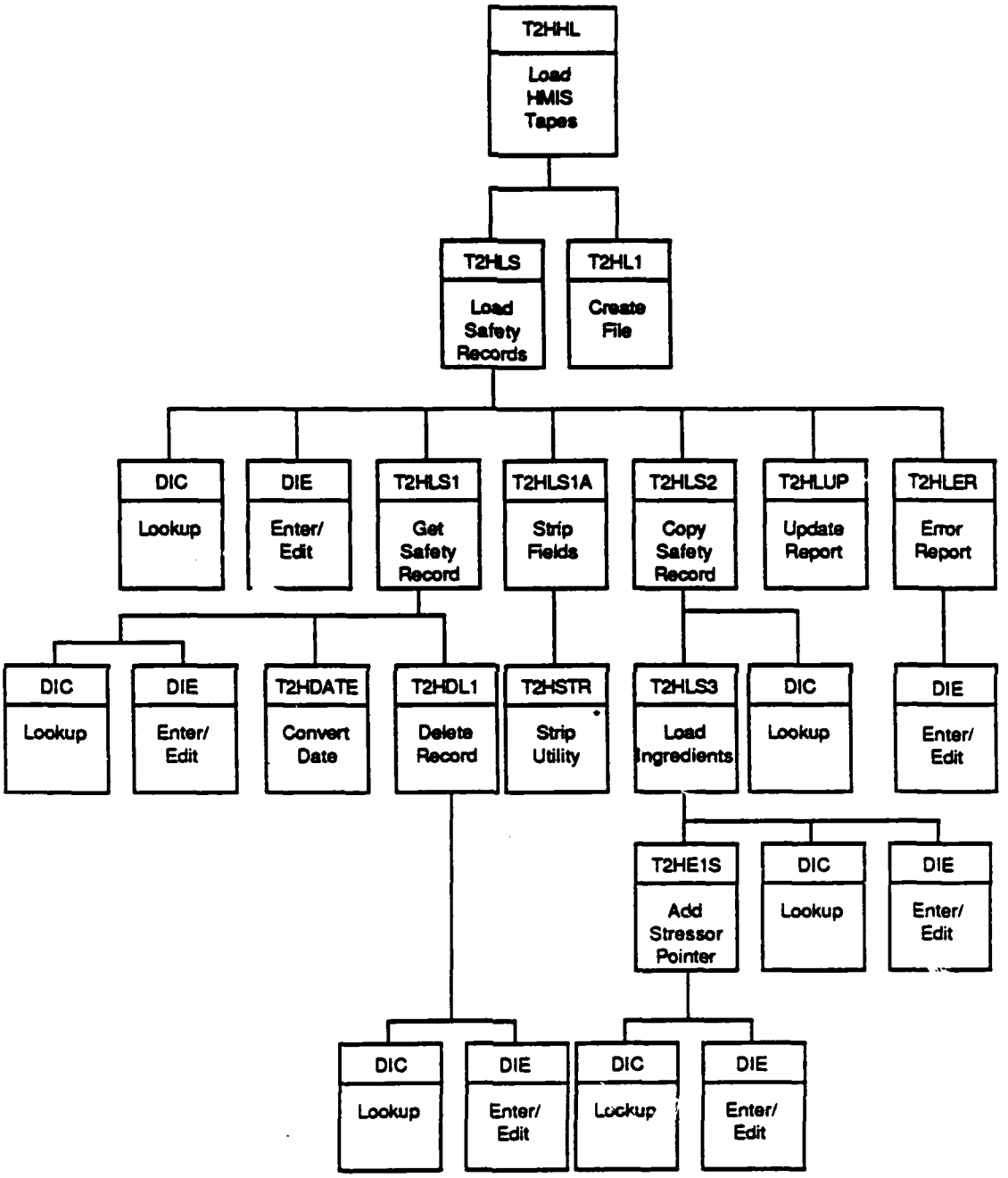

FIGURE 4-3
LOAD SAFETY TAPES

determine which keys to write to the New Stock Number file. It also copies key fields to the New Stock Numbers file for all Materials file entries that have their Safety Flag set to "A".

T2HLS calls one of a series of routines depending on the specific function it is attempting to perform. T2HLS1 determines whether the HMIS record should be loaded and, if so, moves data from the HMIS record into a temporary array* of fields whose subscripts correspond to the field numbers in the FileMan data dictionary. The logic for determining which records are loaded is discussed in Section 4.6.5. T2HLS1 also calls T2HDATE to convert the HMIS Julian date to the FileMan date format. If a material is to be deleted, T2HLS1 calls T2HLD1 to delete entries from the Ingredients and Product files.

T2HLS1A calls T2HSTR to strip leading and trailing blanks from each data field.

T2HLS2 copies the HMIS data from the internal array to a Materials file record. T2HLS3 moves some of the ingredients fields to the Materials file record and some fields to the Ingredients file. It also creates a pointer in the Ingredients file that points back to the Materials file. The variable HNAM is used to contain a line in the error report or the material name in the exception report.

T2HE1S looks up each ingredient in the Stressor file. If the ingredient matches a stressor in the Stressor file, the routine stuffs the pointer field in the Ingredients file with the stressor pointer.

Each time an entry in the Materials file is updated with HMIS data, a line is written on the update report by the routine T2HLUP.

If an error occurs during loading, T2HLS sets the HMIS Data Flag with an error code and calls T2HLER to write an entry to the Error Report. T2HLER also resets the Safety, Transportation, and Print Flags.

4.6.2.2 Load Transportation Tapes. Figure 4-4 is the structure diagram for the routines used in loading the HMIS transportation tapes. T2HL2 is similar to T2HL1 in that it creates the New Stock Numbers file for this type of load. The New Stock Numbers file contains the keys for the transportation records to be loaded from the HMIS tapes. T2HL2 reads the entries keyed into the Materials file using the Set Up New HMIS Record option (see Section 4.5) to determine which keys to write to the New Stock Numbers file. It also copies key fields to the New Stock Numbers file for all materials whose Transportation Flag is set to "A".

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*See FileMan references listed in Section 1.2.

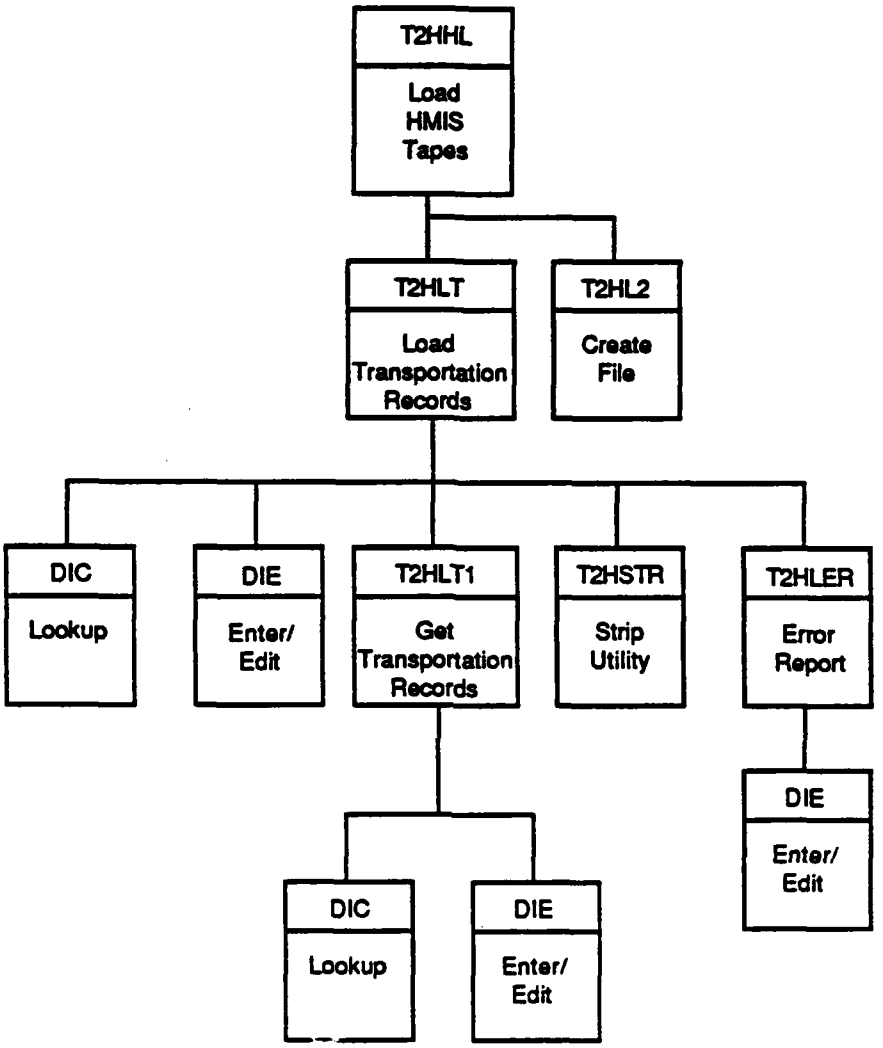

FIGURE 4-4
LOAD TRANSPORTATION TAPES

T2HLT, like T2HLS, is a driver routine. It controls the reading of the transportation tapes and the loading of data into the Materials file. T2HLT1 moves data from a single HMIS record into an array of fields whose subscripts correspond to the field numbers in the FileMan data dictionary. The logic for updating records is described in Section 4.6.5.

T2HLER and T2HSTR perform as described in Section 4.6.2.1.

4.6.3 Globals Referenced

The following globals are read and/or updated in this function:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Update
Ingredients	---	1077	↑HMC(1077,	HMC	Update
New Stock Numbers	---	1081	↑HMC(1081,	HMC	Update
HMIS Errors	---	1089	↑HMC(1089,	HMC	Update
HMIS Update	---	1098	↑HMC(1098,	HMC	Update
Stressor	---	1083	↑STRESS(0,	ADMIN	Read
Product	---	1142	↑EMAT(	EE	Update

4.6.4 Variables

The following variable are used to load safety tapes:

- A: First day of each month
- B: First day of each month in leap year
- DD: Day of month
- DT: Converted date
- H1: Last entry number in Update Report file; Last entry number in Error Report file
- H2: Number of entries in Update Report file; Number of entries in Error Report file
- HA: Stock number; MSDS number
- HAR: Array containing HMIS field values; Entry number of ingredients to be deleted
- HB: Worker data sheet number

- HCOD: Part number indicator
- HDA: Entry number in Materials file
- HDT: MSDS date
- HEN: Entry number in Materials file
- HFN: Field number
- HFSCM: Federal supply code for manufacturer
- HFSCM1: HMIS FSCM
- HFSCM2: Materials file FSCM
- HIN: Entry number in Ingredients file
- HING: Ingredient name
- HLAST: Last entry number in "↑HMC(1081"
- HMFR: Manufacturer
- HMN: Materials file stock number
- HNAM: Material name in exception report; Material trade name; Line in Error Report; Field value in Error Report
- HNDX: Number of HMIS records processed
- HNIOSH: NIOSH number
- HNSN: Stock number
- HNSN1: HMIS stock number
- HNSN2: Materials file stock number
- HNUM: Number of records in New Stock Numbers file; Number of ingredients to delete
- HPCT: Percent of ingredient
- HPN: Part number indicator
- HPN1: HMIS part number indicator

- HPN2: Materials file part number indicator
- HSKIP: Record deleted or not loaded in Materials file
- HVEN: Material vendor name
- HX: Entry number of ingredient multiple in Materials file; Value of field to be stripped of blanks
- HX1-7: HMIS record
- MM: Month
- XX: Type of field
- Y: Length of field
- YY: Year

The following variables are used to load transportation tapes:

- H1: Last entry number in Error Report
- H2: Number of entries in Error Report
- HA: Stock number; MSDS number
- HAR: Array containing HMIS field values
- HB: Worker Data Sheet number
- HDA: Entry number in Materials file
- HEN: Entry number in Materials file
- HFN: Field number
- HFSCM: Federal supply code for manufacturer
- HFSCM1: HMIS FSCM
- HFSCM2: Materials file FSCM
- HLAST: Last entry number in New Stock Numbers file
- HNAM: Field value in Error Report
- HNDX: Number of HMIS records processed

- HNSN: Stock number
- HNSN1: HMIS stock number
- HNSN2: Materials file stock number
- HNUM: Number of records in New Stock Numbers File
- HPN: Part number indicator
- HPN1: HMIS part number indicator
- HPN2: Materials file part number indicator
- HSKIP: Record deleted or not loaded in Materials file
- HX: Value of field to be stripped of blanks
- HX1-7: HMIS record
- XX: Type of field
- Y: Length of field

4.6.5 Remarks

The change code on the HMIS tapes may either be blank or have one of three codes: "A" for "Add", "C" for "Change", or "D" for "Delete". These codes are used in conjunction with the load options that are specified in the top-level routine, T2HHL.

If the load option selected is "Load", then all HMIS records on the incoming tapes, whether safety records or transportation records, are loaded into the Materials file. If either of the other load options, "Add" or "Update", is chosen, then Materials file records whose Safety Flags (Load Safety Tapes) or Transportation Flags (Load Transportation Tapes) are set to "A" (for "absent") have their keys added to the New Stock Numbers file. (These flags are set to "A" by the Set Up New HMIS Record option.) When the "Update" load option is selected and there are change codes in the HMIS tapes, the incoming HMIS record's identifying fields are compared against the respective fields in the Materials file. When the stock numbers match, that record in the Materials file is updated. A change code of "D" causes a delete of the material. If the load option is "Update" and there are no change codes in the incoming record or if the load option is "Add", the HMIS records are compared against the keys in the New Stock Numbers file. When there is a match, the corresponding records in the Materials file are updated.

Either the Safety Flag (Load Safety Tapes) or the Transportation Flag (Load Transportation Tapes) is set to "P" for "Present" when a load is successful. If safety data has been successfully loaded into the Materials file, the HMIS Data Flag is set to "P" for "Present"; the default value of this flag is blank.

If an error occurs during the loading of HMIS data, the HMIS Data Flag is set to "E" for "Error" and the Print Flag is set to "X" so that the entry will not print. Records that contain errors should be manually deleted with the Delete Materials Record option. To re-load the entry, the user should enter the key fields with the Set Up New HMIS Record option.

4.7 Delete Materials Record

4.7.1 Purpose

This option, shown in Figure 4-5, is used to delete an entry from the Materials file. It can be used to delete a local MSDS, an HMIS entry, or a WDS.

4.7.2 Overview

T2HDL queries the user for a material. When one is selected, the user has the option to delete it. If the user deletes it, the routine calls T2HDL1 to delete all the material pointers from the Ingredients file and from the Product file.

4.7.3 Globals Referenced

The following globals are read and/or updated in this function:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Update
Ingredients	---	1077	↑HMC(1077,	HMC	Update
Product	---	1142	↑EMAT(	EE	Update

4.7.4 Variables

The following variables are used:

- HAR: Array containing ingredient pointers
- HEN: Entry number in Materials file
- HNUM: Number of entries in ingredients multiple in Materials file

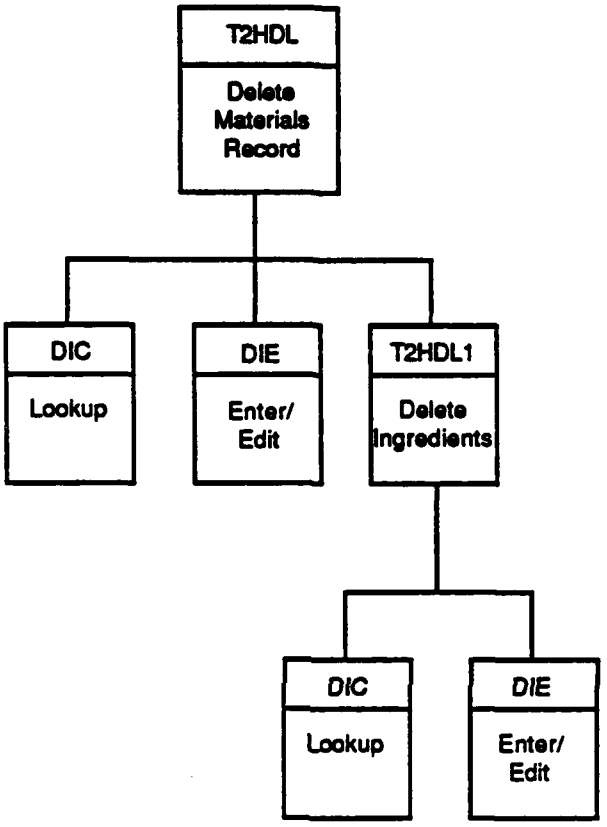

FIGURE 4-5
DELETE MATERIALS RECORD

4.8 WDS Approval

4.8.1 Purpose

This option enters or edits the approval code for a WDS.

4.8.2 Overview

T2HE8 is an edit routine that calls DIE and uses the DR string to control input (Figure 4-6).

4.8.3 Globals Referenced

The following global is updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Update

4.8.4 Variables

No variables unique to the HMC module are used in this option.

4.9 Search for Material

4.9.1 Purpose

This option identifies a single entry in the Materials file and displays the contents of that entry on the VDT screen.

4.9.2 Overview

Most of the search routines shown in Figure 4-7 allow the user to look up an entry using a call to DIC. When an entry is selected, it is displayed using a call to DIQ. The primary search field for each routine is listed in Table 4-2.

The search on ingredients (T2HS2) is different from the other search routines in that it displays a candidate list of materials after the user enters a search phase. The user then selects which material to display. It also allows the user to limit his/her search by specifying TLV, PEL, or other exposure limits as constraints. Routine T2HS2A queries the user for the exposure limits to be used as search constraints. Routine T2HS2B tests the exposure limits in the Materials file to see if they fall within the specified constraints.

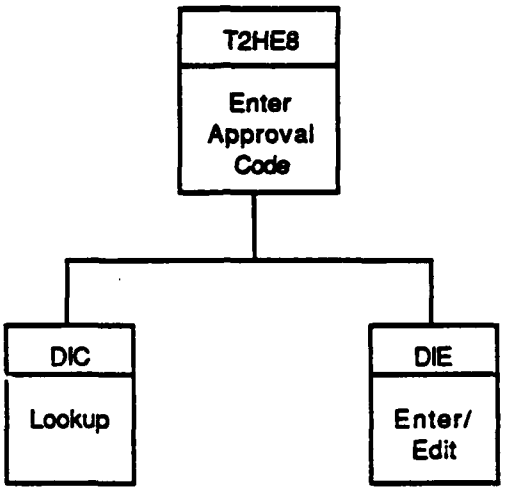

FIGURE 4-6
ENTER APPROVAL CODE OPTION

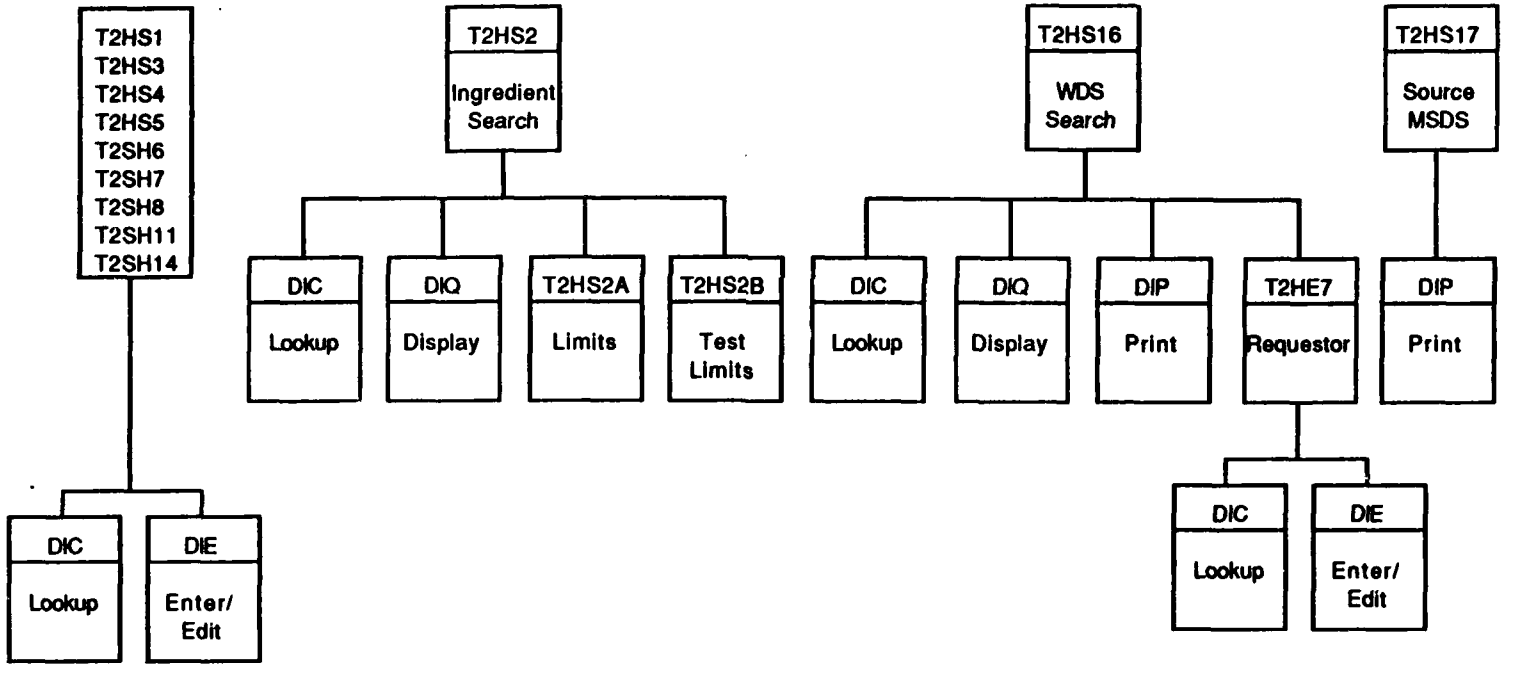

FIGURE 4-7
SEARCH MATERIALS OPTION

TABLE 4-2
SEARCH FIELDS AND ROUTINES

PRIMARY SEARCH FIELD	ROUTINE
Material Name	TSHS1
Ingredient	TSHS2
Chemical Name	T2HS3
Vendor	T2HS4
Stock Number	T2HS5
MSDS Number	T2HS6
Specification	T2HS7
Work Control Document Number	T2HS8
NIIN	T2HS11
CAS/NIOSH Number	T2HS14
Worker Data Sheet Number	T2HS16
Source MSDS Number	TSHS17

The WDS (T2HS16) search is a simple lookup on WDS number or other indexed field. In addition, if the user wants to print the data sheet, he/she is prompted for identifying information by T2HE7.

T2HS17 searches for all the worker data sheets that were created from a single MSDS and displays the WDS numbers.

4.9.3 Globals Referenced

The following globals are read and/or updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Read
Ingredients	---	1077	↑HMC(1077,	HMC	Read

4.9.4 Variables

The following variables are used in this option:

- HAR: Array containing string of material name and Materials file entry number for materials whose ingredients match selection criteria
- HEN: Entry number in the Ingredient file
- HFIT: Set to "Y" if ingredient exposure limits fall within specified limits
- HLIM: Flag set to "Y" if user limits search to specified exposure limits
- HLOW: Lower exposure limit value
- HMATR: First material name entry in Materials file
- HN: Number of entries in HAR
- HPTR: Entry number in Materials file
- HRES: Number of ingredient option selected
- HUNIT: Exposure limit units of measure
- HUP: Upper exposure limit value
- HVAL: Value of exposure limit in Ingredients multiple of Materials file

4.10 Data Sheet Print

4.10.1 Purpose

This option produces data sheets that contain some or all of the data in the Materials file for a given material. WDS's contain portions of the data in the Materials file while MSDS's contain all of the data on a given material.

4.10.2 Overview

There are two main routines that control this option. The first, T2HR2, is a print routine that produces a WDS. It calls T2HE7 which is an input routine that prompts the user for the name and agency unit of the person requesting the WDS. T2HR2 calls DIP and uses the template DS1 to control output. These routines are shown in Figure 4-8.

T2HR3 is a print routine that produces an MSDS (full listing of all data fields in an MSDS or HMIS entry). It calls DIP and uses the template MAT DUMP to control output. These routines are shown in Figure 4-9.

4.10.3 Globals Referenced

The following globals are read and/or updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Read
Ingredients	---	1077	↑HMC(1077,	HMC	Read
Haz Mat Control	---	1079	↑HMC(1079,	HMC	Read
Data Sheet Requests	---	1075	↑HMC(1075,	HMC	Update

4.10.4 Variables

The following variables are used in this option:

- HDA: MSDS number or stock number of entry selected for printing
- HRET: Flag that is set to "Y" if the user does not complete the data input sequence for data sheet requestor

4.11 Indexes of Materials Records

4.11.1 Purpose

This option produces brief reports that list key data for each material in the Materials file.

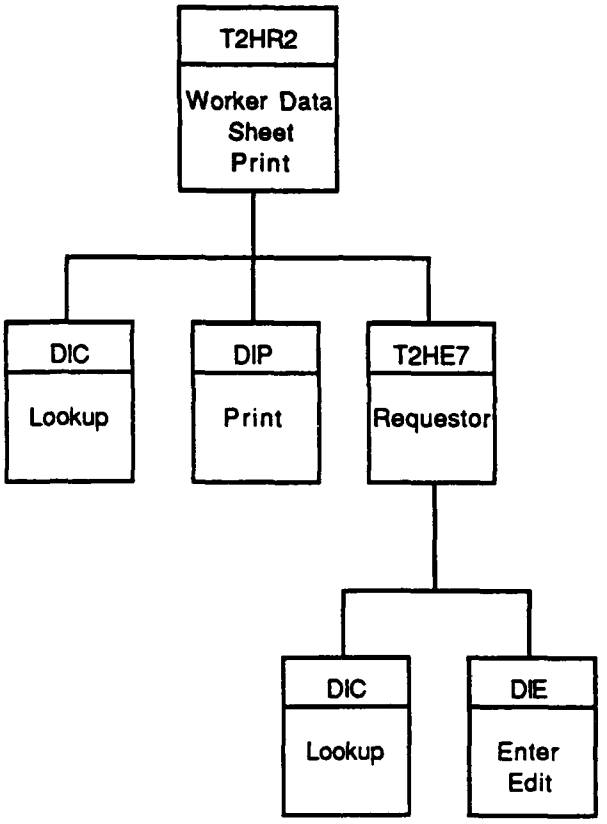

FIGURE 4-8
WORKER DATA SHEET PRINT OPTION

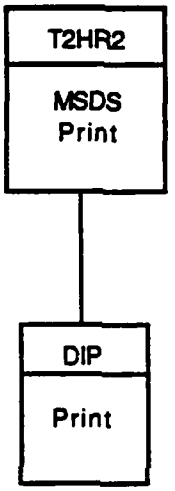

FIGURE 4-9
MSDS PRINT OPTION

4.11.2 Overview

There are four routines that print indexes: T2HR4, T2HR5, T2HR6, and T2HR30. All four routines call DIP and use templates to control output. The template names are given in Table 4-3. The routines are shown in Figure 4-10.

4.11.3 Globals Referenced

The following globals are referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Read
Ingredients	---	1077	↑HMC(1077,	HMC	Read

4.11.4 Variables

There are no variables unique to the HMC module in these routines.

4.11.5 Remarks

If an HMIS entry and MSDS entry both describe a specific material, only the HMIS entry will show on the report. This option uses the Print Flag to determine what entries to print. When the *Materials file contains* data from both an HMIS entry and an MSDS entry, the HMIS entry has its Print Flag set to "P" for "print" and the MSDS entry's Print Flag is set to "X", i.e., "do not print". If the Materials file has only an MSDS entry, then the MSDS entry's Print Flag is set to "P". WDS entries always have their Print Flags set to "null" so that they will not appear on MSDS reports and indexes.

4.12 MSDS Reports

4.12.1 Purpose

This option produces reports that list identifying data on each material in the Materials file. This data includes stock number, vendor, trade name, form, NFPA code, MSDS number, and FSCM.

4.12.2 Overview

There are twelve print routines in this option. All these routines call DIP and use templates to control output. The routines and templates are listed in Table 4-4.

TABLE 4-3
TEMPLATES AND ROUTINES FOR INDEX REPORTS

MAJOR SORT FIELD	TEMPLATE	ROUTINE
Vendor	INDX2	T2HR4
Trade Name	INDX1	T2HR5
MSDS Date	INDX3	T2HR6
WDS Number	INDX4	T2HR30

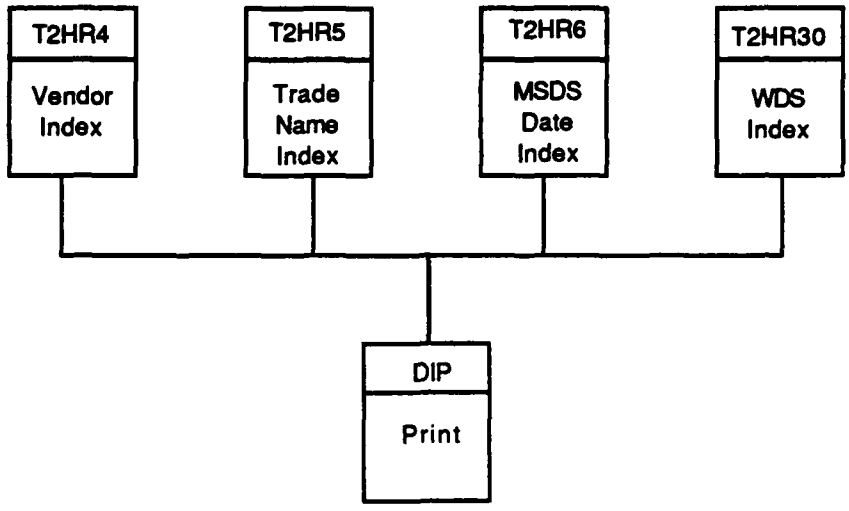

FIGURE 4-10
INDEX PRINT OPTIONS

TABLE 4-4
TEMPLATES AND ROUTINES FOR MSDS REPORTS

MAJOR SORT FIELD	TEMPLATE	ROUTINE
MSDS Number	REPT1	T2HR7
Form of Material	REPT2	T2HR8
Date of Entry	REPT3	T2HR9
Stock Number	REPT4	T2HR15
Specification	REPT6	T2HR20
Health Code	REPT7	T2HR22
Fire Code	REPT7	T2HR23
Reactivity Code	REPT7	T2HR24
Specific NFPA Code	REPT7	T2HR25
Ingredient	REPT8	T2HR28
Work Control Document	REPT9	T2HR29
CAS/NIOSH Number	REPT10	T2HR31

4.12.3 Globals Referenced

The following globals are referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Read
Ingredients	---	1077	↑HMC(1077,	HMC	Read

4.12.4 Variables

There are no variables unique to the HMC module in these routines.

4.12.5 Remarks

If an HMIS entry and MSDS entry both describe a specific material, only the HMIS entry will show on the report. This option uses the Print Flag to determine what entries to print. When the Materials file contains data from both an HMIS entry and an MSDS entry, the HMIS entry has its Print Flag set to "P" for "print" and the MSDS entry's Print Flag is set to "X", i.e., "do not print". If the Materials file has only an MSDS entry, then the MSDS entry's Print Flag is set to "P". WDS entries always have their Print Flags set to "null" so that they will not appear on MSDS reports and indexes.

4.13 HMIS Update Reports

4.13.1 Purpose

There are four options that produce HMIS update reports to summarize the results of an HMIS update run. The four options are:

- Ingredients Not in Stressor File
- No Matching HMIS Record
- HMIS Load Errors
- HMIS Updates

4.13.2 Overview

Three of the HMIS update reports are created during an HMIS update and stored in separate files. The names of the reports and the files used to store them are listed in Table 4-5. The fourth report, No Matching HMIS Record, is produced after the HMIS update is completed by sorting the Materials file on an HMIS Data Flag value of "A", meaning the Materials entry was not updated by HMIS data.

TABLE 4-5
HMIS UPDATE REPORT FILES

REPORT NAME	FILE NAME*
Ingredients Not In Stressor File	Ingredient Exception Report File
HMIS Load Errors	HMIS Errors File
HMIS Updates	HMIS Update File

*See Table 2-1 for global references and FileMan file numbers

There are four print routines that produce the four HMIS update reports. These routines all call DIP and use templates to control output. The routines and templates are listed in Table 4-6 and shown in Figure 4-11. Three of the routines--T2HR16, T2HR21, and T2HR27--also query the user to ask whether the report file should be erased after the report is printed.

4.13.3 Globals Referenced

The following globals are read and/or updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Ingredient Exception Report	---	1076	↑HMC(1076,	HMC	Update
Materials	---	1080	↑HMAT(0,	HMC	Read
HMIS Errors	---	1089	↑HMC(1089,	HMC	Update
HMIS Update	---	1098	↑HMC(1098,	HMC	Update

4.13.4 Variables

The following variables are used:

- HI: A counter used to erase report files
- HN: Number of entries in report files

4.14 List Source of Worker Data Sheets

4.14.1 Purpose

This option displays all the WDS numbers for WDS's that have been created from an MSDS or HMIS entry.

4.14.2 Overview

This option uses the search routine T2HS17. This routine is depicted in Figure 4-6. This routine calls DIP and uses the print template SOURCE MSDS to control output.

TABLE 4-6
TEMPLATES AND ROUTINES FOR HMIS UPDATE REPORTS

REPORT NAME	TEMPLATE	ROUTINE
Ingredients Not in Stressor File	ING REPT	T2HR16
No Matching HMIS Record	REPT5	T2HR17
HMIS Load Errors	HMAT ERROR REPT	T2HR21
HMIS Updates	HMIS UPDATE REPT	T2HR27

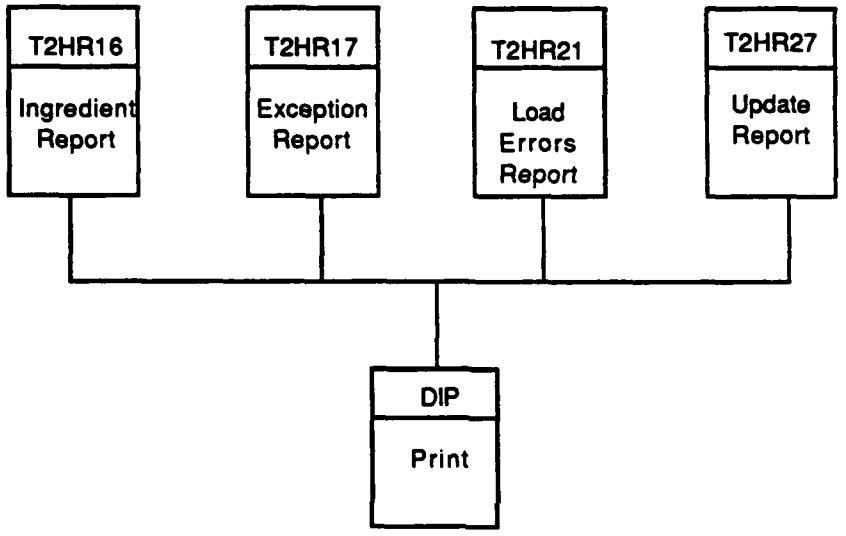

FIGURE 4-11
HMIS LOAD REPORT OPTIONS

4.14.3 Globals Referenced

Only one global is referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Read

4.14.4 Variables

This option uses no variables unique to the HMC module.

5.0 MATERIAL LOCATION PROCESS

5.1 Introduction

The information in this part of the module is obtained from magnetic tapes created by the MM system. This system is operated by the Supply Department at each facility. Each tape contains transaction records that document the issuing of hazardous materials within the facility. Each record on the tape represents one issue transaction. All transactions are loaded into the Material Location file and stay there until manually deleted. No editing of these entries is allowed.

A variety of search options and report options allow the user to display and print entries in the Material Location file.

5.2 MM Tape Load

5.2.1 Purpose

The MM Tape Load option allows the user to load records from monthly MM tapes into the Material Location file.

5.2.2 Overview

T2HMM copies data from the MM tape into an internal array, strips leading and trailing blanks, removes quotes, and loads the data into a Material Location file record (Figure 5-1). Records on the tape overlay entries in the Material Location file if the document numbers on both records match.

5.2.3 Globals Referenced

The following global is referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Material Location	---	1078	↑HMC(1078,	HMC	Update

5.2.4 Variables

The following variables are used:

- HAR: Array containing the input record from the MM tape
- HEND: Flag that is set to "Y" if the end of the tape is reached
- HN: Number of records loaded from tape

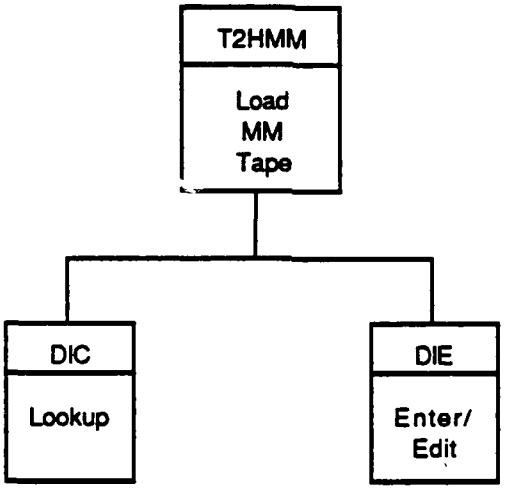

FIGURE 5-1
LOAD MM TAPE OPTION

5.2.5 Remarks

Document number is the .01 field in the Material Location file. This number is only used for identifying an entry and has no special meaning in OSHRKS. It is, however, an important number in the MM system run by the Supply Department.

5.3 Search for Material

5.3.1 Purpose

This option identifies and displays an entry in the Material Location file.

5.3.2 Overview

There are five search routines in this option. The routine names and major sort fields are listed in Table 5-1. All five routines call DIC to look up the entry and DIQ to display the entry.

5.3.3 Globals Referenced

The following global is referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Material Location	---	1078	↑HMC(1078,	HMC	Read

5.3.4 Variables

This option uses no variables unique to the HMC module.

5.4 Purge Material Location File

5.4.1 Purpose

This option deletes entries from the Material Location file based on the material's issue date.

5.4.2 Overview

T2HPG queries the user for the date to be used in deleting entries. All entries that have an issue date prior to the date input are deleted. Each entry is deleted by setting the DR string equal to "@" and calling DIE. These routines are shown in Figure 5-2.

TABLE 5-1
MATERIAL LOCATION SEARCH ROUTINES

MAJOR SORT FIELD	ROUTINE
Contract Number	T2HS9
Description (Name)	T2HS10
Shop Issued To	T2HS12
Building Issued To	T2HS13
Stock Number	T2HS15

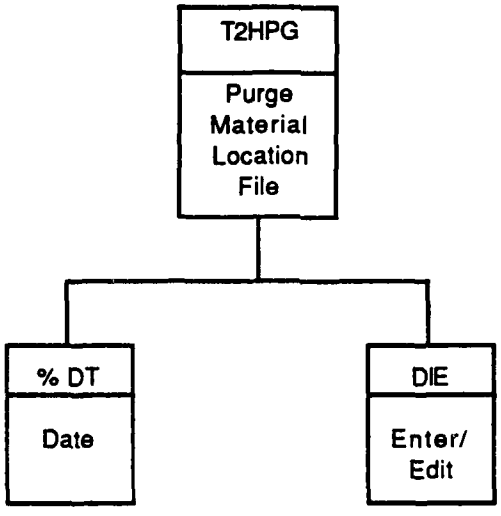

FIGURE 5-2
PURGE MATERIAL LOCATION FILE OPTION

5.4.3 Globals Referenced

The following global is referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Material Location	---	1078	↑HMC(1078,	HMC	Update

5.4.4 Variables

The following variables are used:

- HI: Counter that is incremented once for each entry read
- HN: Counter that keeps total of deleted entries
- HZ: Number of entries in the Material Location file

5.5 Location Reports

5.5.1 Purpose

This option produces reports that list important transaction-related data in the Material Location file. This data includes date issued, shop issued to, shop requesting material, building issued to, contract number, stock number, vendor, and material description.

5.5.2 Overview

There are seven print routines that produce Location reports. All of these routines call DIE and use templates to control output. The routines and templates are listed in Table 5-2.

5.5.3 Globals Referenced

The following global is referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Material Location	---	1078	↑HMC(1078,	HMC	Read

5.5.4 Variables

This option uses no variables that are unique to the HMC module.

TABLE 5-2
TEMPLATES AND ROUTINES FOR MATERIAL LOCATION REPORTS

REPORT NAME	TEMPLATE	ROUTINE
Requesting Shop	LOC1	T2HR10
Building Issued To	LOC2	T2HR11
Contract Number	LOC3	T2HR12
Date Issued To	LOC4	T2HR13
Shop Issued To	LOC5	T2HR14
Material Name	LOC6	T2HR19
Usage Summary	LOC7	T2HR26

6.0 DATA SHEETS REQUESTED INFORMATION PROCESS

6.1 Introduction

There are two options under this process--Request for Data Sheet and Data Sheets Requested. The first option allows the user to enter requestor data into the Data Sheet Requests file. The second option produces a report listing data sheet requests.

6.2 Request for Data Sheet

6.2.1 Purpose

This option allows the user to record which shops are requesting worker data sheets.

6.2.2 Overview

The input routine is T2HE5. It calls DIE and uses the template REQUESTS to control input.

6.2.3 Globals Referenced

The following globals are updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Data Sheet Requests	---	1075	↑HMC(1075,	HMC	Update
Agency Unit	---	1074	↑AGENCY(0,	ADMIN	Read

6.2.4 Variables

This option uses no variables that are unique to the HMC module.

6.3 Data Sheets Requested

6.3.1 Purpose

This option produces a report summarizing the data on WDS requestors.

6.3.2 Overview

The print routine is T2HR18. It calls DIE and uses the template REQUESTS to control output.

6.3.3 Globals Referenced

The following globals are referenced:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Data Sheet Requests	---	1075	^HMC(1075,	HMC	Read
Agency Unit	---	1074	^AGENCY(0,	ADMIN	Read

6.3.4 Variables

This option uses no variables that are unique to the HMC module.

7.0 U.I.C./FACILITY CODE INITIALIZATION

7.1 Purpose

At system startup, this function allows the System Manager to initialize the Haz Mat Control file with the U.I.C., facility abbreviation, and a code that allows the user to load HMIS records by stock number only.

7.2 Overview

T2HE9 is the input routine that calls DIE and uses the DR string to control input.

7.3 Globals Referenced

The following global is updated:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Haz Mat Control	---	1079	↑HMC(1079,	HMC	Update

7.4 Variables

There are no variables used in this option that are unique to the HMC module.

8.0 IDENTIFYING FIELDS DISPLAY UTILITY

8.1 Purpose

When users do a lookup on the Materials file, FileMan displays only the .01 field. The routines in the Display utility display the material's trade name and vendor's name.

8.2 Overview

T2HD displays the material's trade name first. Then, if the manufacturer's name is on file, that is displayed. Otherwise, if the distributor's name is on file, that is displayed.

T2HD1 does everything T2HD does but it also displays the .01 field in those cases when FileMan does not. This routine is used when a lookup is done against an index other than the "B" index. In this case, FileMan only displays the value of the indexed field, not the value of the .01 field, when a "?" is entered. T2HD1 displays the .01 field value for the user.

8.3 Globals Referenced

The only global referenced is as follows:

File Name	Subfile Name	File Number	Global Reference	Module Owner	Read or Update
Materials	---	1080	↑HMAT(0,	HMC	Read

8.4 Variables

The following variables are used:

- H0: First material name in material name multiple
- H1: Entry number of first material name in material name multiple
- H9: Entry number of material in Materials file

APPENDIX A
CROSS REFERENCE OF HMC TO OPTION NAME

OPTION TEXT	OPTION NAME
Building Issued To Location Report	T2H LOC REPORT BUILDING ISSUED
Building Issued To Search	T2H SEARCH BUILDING ISSUED TO
CAS/NIOSH Number Report	T2H REPORT CAS/NIOSH NUMBER
CAS/NIOSH Number Search	T2H SEARCH CAS/NIOSH NUMBER
Chemical Name Search	T2H SEARCH CHEMICAL NAME
Contract No. Search	T2H SEARCH CONTRACT NO.
Contract Number Location Report	T2H LOC REPORT CONTRACT
Data Sheet Print	T2H MENU OF DATA SHEETS
Data Sheets Requested	T2H REPORT DATA SHEET REQUESTS
Date of Issue Location Report	T2H LOC REPORT ISSUE DATE
Delete Materials Record	T2H DELETE MATERIALS RECORD
Description (Name) Location Report	T2H LOC REPORT DESCRIPTION
Description (Name) Search	T2H SEARCH DESCRIPTION
Enter UIC/Facility Codes	T2H EDIT CONTROL FILE
Enter/Edit Hazard Data	T2H MENU OF ENTER/EDIT
Entry Date Report	T2H REPORT ENTRY DATE
Errors in Loading HMIS	T2H REPORT HMIS ERRORS
Extra Fields Enter/Edit	T2H ENTER/EDIT EXTRA FIELDS
Fire Code Report	T2H REPORT FIRE CODE
Form of Material Report	T2H REPORT FORM OF MAT.
Hazardous Materials Control Module	T2H MAIN MENU
Health Code Report	T2H REPORT HEALTH CODE
HMIS Tape Load	T2H HMIS TAPE LOAD
Indexes of Materials Records	T2H MENU OF INDEXES
Ingredient Search	T2H SEARCH INGREDIENT
Ingredients Not in Stressor File	T2H REPORT STRESSOR MISSING
Ingredients Report	T2H REPORT INGREDIENTS
List Source of Worker Data Sheets	T2H SEARCH SOURCE MSDS
Local Comments Enter/Edit	T2H ENTER/EDIT LOCAL COMMENTS
Location Reports	T2H MENU OF LOCATION REPORTS
Manager Options	T2H MENU OF MANAGER OPTIONS
Material Name Search	T2H SEARCH MATERIAL NAME
MM Tape Load	T2H MM TAPE LOAD
MSDS Date Index	T2H INDEX OF MSDS DATE
MSDS Enter/Edit	T2H ENTER/EDIT MSDS
MSDS Number Report	T2H REPORT MSDS NUMBER
MSDS Number Search	T2H SEARCH MSDS NUMBER
MSDS Print	T2H PRINT MSDS
MSDS Reports	T2H MENU OF MSDS REPORTS
NIIN Search	T2H SEARCH NIIN
No Matching HMIS Records	T2H REPORT MISSING HMIS
Purge Materials Location File	T2H PURGE MAT. LOCATION FILE
Reactivity Code Report	T2H REPORT REACTIVITY CODE
Request For Data Sheet	T2H REQUESTS
Requesting Shop Location Report	T2H LOC REPORT REQUEST. SHOP
Search for Material	T2H MENU SEARCH

OPTION TEXT	OPTION NAME
Setup New HMIS Record	T2H SET UP HMIS RECORD
Shop Issued To Location Report	T2H LOC REPORT SHOP ISSUED
Shop Issued To Search	T2H SEARCH SHOP ISSUED TO
Specific NFPA Code Report	T2H REPORT SPECIFIC CODE
Specification Report	T2H REPORT SPECIFICATION
Specification Search	T2H SEARCH SPECIFICATION
Stock Number Report	T2H REPORT STOCK NUMBER
Stock Number Search	T2H SEARCH STOCK NUMBER
Stock Number Search (Location File)	T2H SEARCH STOCK NO. (LOC.)
Trade Name Index	T2H INDEX OF TRADE NAMES
Update of HMIS Records	T2H REPORT HMIS UPDATE
Usage Summary Location Report	T2H LOC REPORT USAGE SUMMARY
Vendor Index	T2H INDEX OF VENDORS
Vendor Search	T2H SEARCH VENDOR
WDS Approval	T2H APPROVAL
WDS Enter/Edit	T2H ENTER/EDIT WORKER DS
WDS Index	T2H INDEX OF WDS
Work Cont. Doc. Search	T2H SEARCH WORK CONT. DOC.
Work Control Document Enter/Edit	T2H ENTER/EDIT WORK CONT. DOC.
Work Control Document Report	T2H REPORT WORK CONTROL DOC.
Worker Data Sheet Print	T2H PRINT WORKER DATA SHEET
Worker Data Sheet Search	T2H SEARCH WORKER DS

APPENDIX B
PRINT TEMPLATES

PRINT TEMPLATE	OPTION
HMAT ERROR REPT	Errors in Loading HMIS
HMIS UPDATE REPT	Update of HMIS Records
INDX1	Trade Name Index
INDX2	Vendor Index
INDX3	MSDS Date Index
INDX4	WDS Index
ING REPT	Ingredients Not In Stressor File
LOC1	Requesting Shop Location Report
LOC2	Building Issued To Location Report
LOC3	Contract Number Location Report
LOC4	Date of Issue Location Report
LOC5	Shop Issued To Location Report
LOC6	Description (Name) Location Report
LOC7	Usage Summary Location Report
REPT1	MSDS Number Report
REPT2	Form of Material Report
REPT3	Entry Date Report
REPT4	Stock Number Report
REPT5	No Matching HMIS Record
REPT6	Specification Report
REPT7	Health Code Report
	Fire Code Report
	Reactivity Code Report
	Specific NFPA Code Report
REPT8	Ingredients Report
REPT9	Work Control Document Report
REPT10	CAS/NIOSH Number Report
REQUESTS	Data Sheets Requested
SOURCE MSDS	List Source of Worker Data Sheets

APPENDIX C
CROSS REFERENCE OF ROUTINE ENTRY POINTS TO CALLING OPTION/ROUTINE

ROUTINE	CALLING OPTION/ROUTINE
↑%DT	Purge Material Location File (T2HPG)
↑%ZIS	Material Name Search (T2HS1) Ingredient Search (T2HS2) Chemical Name Search (T2HS3) Vendor Search (T2HS4) Stock Number Search (T2HS5) MSDS Number Search (T2HS6) Specification Search (T2HS7) Work Control Document Search (T2HS8) NIIN Search (T2HS11) CAS/NIOSH Number Search (T2HS14) Worker Data Sheet Search (T2HS16)
↑DIC	T2HC Delete Materials Record (T2HDL) T2HDL1 MSDS Enter/Edit (T2HE1) T2HE1S Extra Fields Enter/Edit (T2HE2) Local Comments Enter/Edit (T2HE3) Work Control Document Enter/Edit (T2HE4) Request For Data Sheet (T2HE5) WDS Enter/Edit (T2HE6) T2HE7 WDS Approval (T2HE8) Set Up New HMIS Record (T2HH) T2HLS T2HLS1 T2HLS2 T2HLS3 MM Tape Load (T2HMM) Worker Data Sheet Print (T2HR2) MSDS Print (T2HR3) Material Name Search (T2HS1) Description (Name) Search (T2HS10) NIIN Search (T2HS11) Shop Issued To Search (T2HS12) Building Issued To Search (T2HS13) CAS/NIOSH Number Search (T2HS14) Stock Number Search (Location File) (T2HS15) Worker Data Sheet Search (T2HS16) Ingredient Search (T2HS2) Chemical Name Search (T2HS3)

ROUTINE	CALLING OPTION/ROUTINE
	Vendor Search (T2HS4)
	Stock Number Search (T2HS5)
	MSDS Number Search (T2HS6)
	Specification Search (T2HS7)
	Work Control Document Search (T2HS8)
	Contract Number Search (T2HS9)
↑DIE	Delete Materials Record (T2HDL)
	T2HDL1
	MSDS Enter/Edit (T2HE1)
	T2HE1S
	Extra Fields Enter/Edit (T2HE2)
	Local Comments Enter/Edit (T2HE3)
	Work Control Document Enter/Edit (T2HE4)
	Request For Data Sheet (T2HE5)
	WDS Enter/Edit (T2HE6)
	T2HE7
	WDS Approval (T2HE8)
	Enter UIC/Facility Codes (T2HE9)
	Set Up New HMIS Record (T2HH)
	HMIS Tape Load (T2HHL)
	T2HLER
	T2HLS
	T2HLS1
	T2HLS3
	T2HLT
	T2HLT1
	MM Tape Load (T2HMM)
	Purge Materials Location File (T2HPG)
IX1↑DIK	T2HC
EN1↑DIP	Requesting Shop Location Report (T2HR10)
	Building Issued To Location Report (T2HR11)
	Contract Number Location Report (T2HR12)
	Date of Issue Location Report (T2HR13)
	Shop Issued To Location Report (T2HR14)
	Stock Number Report (T2HR15)
	Ingredients Not In Stressor File (T2HR16)
	No Matching HMIS Records (T2HR17)
	Data Sheets Requested (T2HR18)
	Description (Name) Location Report (T2HR19)
	Worker Data Sheet Print (T2HR2)
	Specification Report (T2HR20)
	Errors in Loading HMIS (T2HR21)
	Health Code Report (T2HR22)

ROUTINE	CALLING OPTION/ROUTINE
	Fire Code Report (T2HR23)
	Reactivity Code Report (T2HR24)
	Specific NFPA Code Report (T2HR25)
	Usage Summary Location Report (T2HR26)
	Update of HMIS Records (T2HR27)
	Ingredients Report (T2HR28)
	Work Control Document Report (T2HR29)
	MSDS Print (T2HR3)
	WDS Index (T2HR30)
	CAS/NIOSH Number Report (T2HR31)
	Vendor Index (T2HR4)
	Trade Name Index (T2HR5)
	MSDS Date Index (T2HR6)
	MSDS Number Report (T2HR7)
	Form of Material Report (T2HR8)
	Enter Date Report (T2HR9)
	Worker Data Sheet Search (T2HS16)
	List Source of Worker Data Sheets (T2HR17)
EN↑DIQ	Material Name Search (T2HS1)
	Description (Name) Search (T2HS10)
	NIIN Search (T2HS11)
	Shop Issued To Search (T2HS12)
	Building Issued To Search (T2HS13)
	CAS/NIOSH Number Search (T2HS14)
	Stock Number Search (Location File) (T2HS15)
	Worker Data Sheet Search (T2HS16)
	Ingredient Search (T2HS2)
	Chemical Name Search (T2HS3)
	Vendor Search (T2HS4)
	Stock Number Search (T2HS5)
	MSDS Number Search (T2HS6)
	Specification Search (T2HS7)
	Work Control Document Search (T2HS8)
	Contract Number Search (T2HS9)
T2HDL	Delete Materials Record
T2HE1	MSDS Enter/Edit
T2HE2	Extra Fields Enter/Edit
T2HE3	Local Comments Enter/Edit
T2HE4	Work Control Document Enter/Edit
T2HE5	Request For Data Sheet
T2HE6	WDS Enter/Edit
T2HE8	WDS Approval
T2HE9	Enter UIC/Facility Codes
T2HH	Setup New HMIS Record

ROUTINE	CALLING OPTION/ROUTINE
T2HHL	HMIS Tape Load
T2HMM	MM Tape Load
T2HPG	Purge Materials Location File
T2HR10	Requesting Shop Location Report
T2HR11	Building Issued To Location Report
T2HR12	Contract Number Location Report
T2HR13	Date of Issue Location Report
T2HR14	Shop Issued To Location Report
T2HR15	Stock Number Report
T2HR16	Ingredients Not in Stressor File
T2HR17	No Matching HMIS Records
T2HR18	Data Sheets Requested
T2HR19	Description (Name) Location Report
T2HR2	Worker Data Sheet Print
T2HR20	Specification Report
T2HR21	Errors in Loading HMIS
T2HR22	Health Code Report
T2HR23	Fire Code Report
T2HR24	Reactivity Code Report
T2HR25	Specific NFPA Code Report
T2HR26	Usage Summary Location Report
T2HR27	Update of HMIS Records
T2HR28	Ingredients Report
T2HR29	Work Control Document Report
T2HR3	MSDS Print
T2HR30	WDS Index
T2HR31	CAS/NIOSH Number Report
T2HR4	Vendor Index
T2HR5	Trade Name Index
T2HR6	MSDS Date Index
T2HR7	MSDS Number Report
T2HR8	Form of Material Report
T2HR9	Entry Date Report
T2HS1	Material Name Search
T2HS10	Description (Name) Search
T2HS11	NIIN Search
T2HS12	Shop Issued To Search
T2HS13	Building Issued To Search
T2HS14	CAS/NIOSH Number Search
T2HS15	Stock Number Search (Location File)
T2HS16	Worker Data Sheet Search
T2HS17	List Source of Worker Data Sheets
T2HS2	Ingredient Search
T2HS3	Chemical Name Search
T2HS4	Vendor Search

ROUTINE	CALLING OPTION/ROUTINE
T2HS5	Stock Number Search
T2HS6	MSDS Number Search
T2HS7	Specification Search
T2HS8	Work Cont. Doc. Search
T2HS9	Contract No. Search